MONTHLY REPORT

OF

THE DEPARTMENT OF AGRICULTURE,

FOR

NOVEMBER AND DECEMBER,

1869.

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MONTHLY REPORT.

DEPARTMENT OF AGRICULTURE, STATISTICAL DIVISION,
Washington, D. C., December 10, 1869.

SIR: I herewith report for publication a statement of the condition of crops November 1, with data bearing upon agricultural productions received during November and December, including estimates in detail of the corn and cotton crops, and brief notes from correspondence bearing upon the several fall crops; together with various extracts from the general correspondence of the department, including reports on experiments with seeds sent out; also, articles upon the following subjects, viz: the southern fairs, the ramie, statistics of cotton manufacture, beet-sugar manufacture, fish culture, American sumac, the great rain storms, Michigan statistics, notes on the agriculture of Colorado and New Mexico, agricultural resources of Jefferson County, Colorado, and of Eastern Oregon and Wa hington Territory, the "foot and mouth disease," agriculture in the Netherlands, &c.; with meteorological tables and notes on the weather for the month of October.

J. R. DODGE,
Statistician.

HON. HORACE CAPRON,
Commissioner.

CONDITION OF THE CROPS.

CORN.

On the first of September a failure of the corn crop of northern New England appeared to be imminent. Two weeks earlier indications of frost were seen in parts of New Hampshire, and on the first week of September blackened leaves of maize were observed in deep valleys, while the ears were scarcely fit for roasting. The apprehension was general that no corn would ripen. Fine sunny weather followed, continuing through September and part of October, with occasional rains, ripening the crop very fully in some places, in others leaving it in partial immaturity. On the warm slopes and good soils of Addison County, Vermont, and similar lands, the quality was equal to that of the best crops of former years, while in Orleans County the quality was inferior, though the quantity was an average. On the margins of streams much damage was done by the heavy rains of October 4 and 5. The crop of New England will be less than that of last year by about eighteen per cent.

The severe drought of July and August, prevalent along the Atlantic coast, affected corn injuriously, but the favorable weather of the later months greatly relieved the severity of the injury. The October rains

swept away shocks of corn in the valleys, to some extent, in New Jersey and Maryland. From some portions of Pennsylvania come reports of immaturity, while a general assurance is given of a larger quantity and better quality than was expected in the summer. Virginia suffered severely by the drought, which dwarfed the stalk and blade, and interfered with its perfect earing, yet the ears were generally well filled in proportion to the growth of the stalk, except in worn-out lands. Drought was severe in North Carolina, reducing the crop materially as a whole. In Beaufort County, and in Hyde, adjoining, counties with deep, moist soil, rich as the prairies with organic matter, a good crop was gathered, while in Gaston, and upon the central ridge, thence to Wake County, a region of moderately productive, easily improved, and serviceable soil for various purposes, the yield was much reduced. The corn region in this State is the coast section, parts of which not even Illinois can excel in depth of organic matter or abundance of growth, when properly cultivated; the next belt, that of the long-leafed pine, is better for cotton; the next zone is especially suited to wheat, and the mountain section to corn again, grasses and fruits; and the yield of the present season is in accordance with this peculiar adaptation. In South Carolina and Georgia the long season of hot and dry weather reduced materially the yield in the aggregate, with the same variation, in different circumstances of soil and culture, as in States further north.

A fair summary of reports from the entire district affected by drought would be: Fields badly tilled, overrun with weeds, or with a thin sandy soil, or a heavy clay not ameliorated by culture, were scorched and partially, or wholly, laid waste; while deep soils of river bottoms, rich slopes of virgin soil, and fields kept clean of weeds and frequently cultivated, gave satisfactory and even large returns.

The crop of Alabama, and that of Mississippi, suffered still less, yet is not an average one. Texas shows an increase—in some counties the largest crop ever grown is reported—in one (Coryell) the average yield is placed at forty bushels.

The October freeze injured corn in Kentucky, both in shock and in the field, and wet weather was the cause of loss in low lands. In Missouri the crop was generally fine in rolling prairie and in timber lands, but poor in level prairie, from excess of rain.

The aggregate of the crop exceeds that of last year, and the quality is good. A reduction of seventeen per cent. is indicated in Illinois. From several counties come very gloomy reports. La Salle reports a decrease of thirty per cent.; Hancock has thousands of acres nearly worthless, and the average yield is fixed at eighteen bushels; Mercer has "made a fair crop out of a poor material;" "Winnebago has much soft corn, unfit to crib." In the center of corn-growing—Illinois, Indiana, and Ohio—the wet spring and cool summer delayed the ripening, and though there were no severe early frosts, the freezing weather in October found much of the crop imperfectly matured, as in Martin County, Ind., where at that date "it was barely out of roasting ear." In Michigan, Wisconsin, Minnesota, and Iowa, the reduction in quality was still greater, as also the quantity per acre; in the latter two, the increase of acreage, the result of immigration, and the making of new farms, will nearly neutralize the diminution of yield, and make the aggregate production about equal to that of last year, and in the case of Minnesota make a small increase.

The only States reporting an increase of quantity are Minnesota, Missouri, Florida, Nebraska, Kansas, Texas, and California. Louisiana and Iowa give nearly an average. The principal corn-growing section of the West will average a reduction of fully twenty per cent. in yield per acre.

With all the increase of farmers to produce, and population to consume, and with an actual enlargement of area under culture, it is certain that there is actually less corn produced this year than in 1868.

COTTON.

The drought of the Atlantic coast was far less injurious to cotton than to corn. Superior cotton soils, well cultivated, rarely suffer for want of rain; inferior, shallow, and neglected soils, which produce small crops under the most favorable circumstances, are often injured, and in the present season have in many cases yielded meager returns for the little labor expended. Everywhere the acreage planted is greater than last year; the product per acre in the sea-coast States is materially less, with very few exceptions. The relative proportion of lint to seed is from some cause less than usual. The use of fertilizers has largely increased the yield of these States, has given a better stand in fields where the plant had a feeble start, and stimulated to rapid growth and early maturity. In one experiment reported, the first picking of plants fed with guano yielded, September 11, a ten-fold increase over a similar area of undressed soil, and at the end of the season the enriched soil had produced just double the amount of that unenriched. A judicious system of fertilization is practiced by the few, while the many obtain increased crops through a more rapid exhaustion of the soil, by the aid of guano and various compounds rich in ammonia.

The grasshopper, in some parts of Texas, injured cotton that was planted late. Drought affected it unfavorably in the Red River region. Worms, heavy rains, and overflows were locally injurious. But for these drawbacks the yield would have been very large. Still the aggregate is much larger than that of 1868. Reports of five hundred pounds of lint per acre, where good culture followed a careful selection of seed, are not unfrequent. Some counties return an average of three hundred pounds per acre. The culture in Texas is extending far beyond its limits in 1860, one county which made no return at that date returning four thousand three hundred bales, and others, producing it for the first time, average three hundred pounds per acre.

Arkansas has made an average crop, upon a somewhat increased area; but Tennessee, a small portion only of which is ever cultivated in cotton, has a smaller yield than last year.

The picking commenced earlier than usual, and the later bolls ripened more thoroughly; the season for gathering the lint has been quite uniformly favorable, a circumstance always greatly conducive to increase of the crop aggregate, and favoring a freedom from "trash" and dirt.

An examination of the crop tabulations which follow will show the estimated yield per acre in each State, and the comparison with last year, expressed as a percentage of the crop of 1868.

States.	Product compared with that of 1868.	Yield per acre.
	Per cent.	*Pounds.*
North Carolina	95	145
South Carolina	85	123
Georgia	95	150
Florida	107	152
Alabama	108	176
Mississippi	115	201
Louisiana	112	296
Texas	125	275
Arkansas	110	251
Tennessee	85	160

The aggregate product, in accordance with returns received to this date, is little more than ten per cent. above the yield of 1868, or about 2,700,000 commercial bales, or fully three millions of bales of four hundred pounds each.

POTATOES.

The potato crop is very large. The greatest increase is, respectively, in Kansas, Nebraska, Illinois, Iowa, and Missouri; all of the eastern States, New York, New Jersey, and Pennsylvania, and all the western, except Minnesota, have advanced in production; but the southern States, excepting only Florida, Louisiana, and Texas, have reduced their aggregate. The sweet potato crop is somewhat less than an average.

Rot has been more prevalent than for several years, in the eastern and middle States, confined mainly to those harvested late. Rotting from exposure to sun, or when dug in hot weather, has been prevented by sprinkling with air-slacked lime.

In parts of Pennsylvania the Early Rose, Garnet-Chili, and Goodrich, are held in highest esteem this year as early varieties, and the Harrison as a late potato. Some varieties, which were quite poor in quality in 1868, are very good the present year. In Maryland the Early Rose and Orono are noted for prolific yields. Rarely has there been so productive a season for the potato in the West, where the yield has been extraordinary in some localities, reaching 400 bushels per acre in certain instances. A portion of the crop in this section was overtaken by frosts, and severely injured by freezing in the ground. In some counties one-third of the crop was thus destroyed.

TOBACCO.

The latest returns indicate a reduction of one-third in Virginia and Maryland, one-sixth in Kentucky, sixteen per cent. in Michigan, with a slight decrease in Indiana and Illinois. Massachusetts, West Virginia, Michigan, Wisconsin, and the States west of the Mississippi, have somewhat enlarged their production. A fair summary of these returns would seem to indicate an aggregate reduction of about twenty per cent.

The drought in Maryland and Virginia, and October frosts in Kentucky and other western States, are prominent causes of depreciation. The damage in Trimble County, Kentucky, amounts to hundreds of thousands of dollars, and affects tobacco in the houses and on the scaffolds as well as in the fields.

The quality is variable. In some locations, where the quantity has been reduced by drought, the quality is superior. In others, both quantity and quality are greatly reduced.

FRUITS.

The apple crop was a more than average one in the West, with the exception of Ohio, where a reduction of twenty per cent. is indicated. Maine, Massachusetts, and Rhode Island made but half a crop; New Hampshire and Connecticut three-fourths, while Vermont enjoyed nearly an average yield. New York and Pennsylvania suffered fully a tenth reduction; New Jersey, Delaware, Maryland, and Virginia produced crops from full to large; and the more southern States report generally a small yield.

In the latter part of October the orchards of the Ohio Valley, and

those west of the Mississippi, were despoiled, either in part or totally, as to the fruit still remaining ungathered, by heavy frosts. In some instances apples were shaken into the snow to save them, and those slightly frozen were subjected to similar treatment as a curative; a large proportion were sent to the cider-mill. Those placed in heaps on the ground, and covered with snow, were saved. In Calhoun County, Michigan, 100,000 bushels, one-third of the crop, were frozen. In Athens County, Ohio, many thousands of bushels have been frozen on the trees. Similar statements come from all portions of the West. A larger production of cider than ever before made is the result.

Reference is made to the extracts from correspondence, and to the statistical tables, for details of quantity and quality of apples, pears, grapes, and other fruits.

The orange yield has been very large in Florida. Frost injured the fruit-buds of lemons, but not the trees.

MISCELLANEOUS.

The cultivation of broom-corn is attracting increased attention, and is found to be a profitable southern crop. Yet, the aggregate product will scarcely be adequate to the wants of the trade.

Sorghum culture has extended southward, and beyond the Missouri; and the manufacture of syrup has increased. More attention than usual has been given to honey production in the younger States; in Kansas the buckwheat acreage has been extended very materially for the supply of bee forage.

Table showing the condition of the crops, &c., on the 1st day of November, 1869.

STATES.	Corn.		Potatoes, (*Solanum tuberosum.*)		Potatoes, (*Batatus edulis,*) sweet.		Tobacco.		Beans.—Product compared with last year.	Peas.—Product compared with last year.	Buckwheat.—Product compared with last year.
	Product compared with last year.	Average quality compared with last year.	Product compared with last year.	Average quality compared with last year.	Product compared with last year.	Average quality compared with last year.	Product compared with last year.	Average quality compared with last year.			
Maine	6.9	8.7	10.2	10.4	.....	.....	.....	.....	9.5	10.2	10
New Hampshire	8.3	9.3	10.3	10.5	.....	.....	.....	.....	10.3	10	10
Vermont	7.6	8.6	11.5	10.6	.....	.....	.....	.....	10.8	10.6	12
Massachusetts	8.5	9	10.7	10.8	.....	.....	12.5	10	9.3	10.6	7.6
Rhode Island	9.3	9.6	11	11	.....	.....	.....	.....	11	10	.....
Connecticut	8.2	8.7	11.5	11	.....	.....	9.3	10	9.5	.....	8.5
New York	8.1	9	10.6	9.9	.....	.....	9	9	8.9	10.2	9.5
New Jersey	8.4	9.5	11	10.5	7.6	9.5	.....	.....	9	9	7
Pennsylvania	8.5	8.8	10.2	10.2	9.3	9.3	9.7	9.1	8.5	8.9	7.9
Delaware	7	10	5	10	5	10	.....	.....	8	10	4
Maryland	7.5	8.4	7.9	8.7	7	9.1	6.7	8	8.4	7.7	6.1
Virginia	7	8.7	8.8	9	7.2	8.5	6.6	7.3	7.7	8.4	4
North Carolina	7.5	8.8	8.1	8.6	6.8	7.8	9	9	6.6	6.3	6.8
South Carolina	6.5	8.3	7.8	9.8	5.5	7.4	.....	.....	.....	4.4	.....
Georgia	8.5	9.4	7.8	8.7	6.5	6.8	8	8.9	7	4.5	.....
Florida	10.7	10.2	10.6	10	9.1	8.7	9.6	10.6	10	8.4	.....
Alabama	9	9.3	9.2	9.4	6.5	7	.....	.....	.....	6.7	.....
Mississippi	8.5	9.6	9	10.3	7.4	9.6	7.6	10	9.8	6.8	.....
Louisiana	9.7	10.1	10.8	10	8.6	9.8	8	9	10	8.3	.....
Texas	10.7	10.5	10.5	11.2	10.6	10.3	9.5	10	12	10.9	.....
Arkansas	8.8	9.9	9.9	9.8	10	9.6	8.8	10.2	8.6	8.2	.....
Tennessee	7.5	9.5	8.5	9.5	7.7	8.7	9.3	9.8	6.6	7	7
West Virginia	8.9	10.2	10.3	10.4	10	9.6	10.2	10.1	10.4	10.1	8.2
Kentucky	8	9.2	8.8	9.8	9.3	10	8.3	8.3	9	8.8	8.5
Missouri	11.7	10.6	13.5	11.7	9.9	9.5	10.2	10.3	11	10	9.9
Illinois	8.3	10.6	14.6	11.2	10.5	10.3	9.6	10	10.4	9.3	12.7
Indiana	8	9.3	12.5	11	10.1	10.2	9.6	9.7	9.9	9.2	8.2
Ohio	8	9.4	13	10.6	9.9	9.8	8.6	9.8	10.6	10.2	8.9
Michigan	7.5	8.5	12.8	10.9	.....	.....	10.4	9.8	10	10.1	10.2
Wisconsin	7.4	7.5	12.5	10.5	8.6	9.3	10	8.6	10.5	9.7	11.1
Minnesota	10.5	8.5	9	8.6	.....	.....	9.3	10	10.7	10.2	11.1
Iowa	9.9	10.6	13.5	9.6	10.8	10.2	15	9	11.3	9.7	9.9
Kansas	18	10.5	17.4	14.5	11.8	11	10.6	11.3	11.7	13.5	11.8
Nebraska	17	10.5	16.7	11.8	9.3	9	12.5	11	15.8	12.1	14.5
California	10.7	9.6	10.1	9.2	11.6	10.6	.....	.....	10	9.8	11.2

Condition of the crops, &c., on the 1st day of November, 1869.—Continued.

STATES.	Flax.—Product compared with last year.	Hay.		Cotton.		Sorghum.—Product compared with last year.	Sugar Cane, (not sorghum.)—Indicated product compared with last year.	Grapes.—Product compared with an average crop.	Apples.—Product compared with an average crop.	Pears.—Product compared with an average crop.	Cranberries.—Product compared with an average crop.
		Product compared with last year.	Average quality compared with last year.	Indicated product compared with last year.	Indicated product (lint) per acre, *in pounds*.						
Maine	10	8.7	11	.....	.....	.....	.....	9.5	5	7.8	9.5
New Hampshire	.....	9.3	10.6	.....	.....	.....	.....	10	7.3	10	.....
Vermont	.....	11	10.3	.....	.....	.....	.....	8.7	9.5	10.6	.....
Massachusetts	.....	9.2	10.3	.....	.....	.....	.....	9.6	5.2	9	7.7
Rhode Island	.....	10	11	.....	.....	.....	.....	10	2.6	8.6	13
Connecticut	.....	11	12	.....	.....	.....	.....	9	8	10	9.5
New York	10.3	11.7	9.7	.....	.....	.....	.....	8.8	8.6	10.9	9
New Jersey	.....	9.6	9.8	.....	.....	9.6	.....	10	11.5	10	10.1
Pennsylvania	9.3	10.5	9.6	.....	.....	8	.....	9.2	8.9	10.5	10.5
Delaware	8	9	10	.....	.....	7	.....	12	12	12	.....
Maryland	.....	8.7	9.7	.....	.....	7.6	.....	11.1	11	14	.....
Virginia	9.1	9.9	10	.....	.....	7	.....	10.3	10	10.2	.....
North Carolina	8.8	8.8	10.2	9.5	145	8	.....	10	7.2	6.3	.....
South Carolina	.....	6.8	9.7	8.5	123	6.6	.....	9.6	7.1	5.2	.....
Georgia	.....	8	9.8	9.5	150	7	6.5	8.3	6.3	6.3	.....
Florida	.....	13.5	10.5	10.7	152	.....	8.1	.....	.....	.....	.....
Alabama	.....	8.1	9.7	10.8	176	8.2	10.5	8.6	7	7	.....
Mississippi	.....	9.5	11	11.5	201	8.4	11	11.6	7.7	6	.....
Louisiana	.....	9	8.8	11.2	296	.....	9.5	.....	7.6	6.6	.....
Texas	.....	10.8	10.8	12.5	275	10.6	10.5	9.5	9.6	10	.....
Arkansas	.....	9.7	9.7	11	251	8.6	.....	10.2	7.8	7.1	.....
Tennessee	10	10.9	10.7	8.5	160	8	.....	8.6	7.7	6.9	.....
West Virginia	9.8	11	10.9	.....	.....	9.8	.....	10.3	13.1	11.2	.....
Kentucky	9.3	10.1	10.2	.....	.....	8.5	.....	8.7	11.1	11.5	.....
Missouri	9	13	11	10	308	9.3	.....	9.6	12.5	10.9	.....
Illinois	9.2	12	10.4	.....	.....	8.8	.....	7.7	10.5	10.4	.....
Indiana	9.1	10.9	9.9	.....	.....	8.8	.....	8.9	11.6	11.3	11.1
Ohio	10.7	11.1	9.6	.....	.....	9	.....	8.4	7.9	11.3	.....
Michigan	11.3	11.3	9.3	.....	.....	8.5	.....	9.3	10.4	11.5	10.5
Wisconsin	11.5	11.5	9.2	.....	.....	6	.....	9.2	11	11.1	13.2
Minnesota	10.7	9	8.8	.....	.....	7.9	.....	10.4	11	.....	10
Iowa	9.5	11.6	8.9	.....	.....	8.7	.....	10.3	12.3	12.8	.....
Kansas	.....	13.5	10.6	.....	.....	11.8	.....	12.5	14.6	12.6	.....
Nebraska	.....	13	10	.....	.....	11.5	.....	11.1	11.1	11	.....
California	15.6	10.5	9.5	.....	.....	.....	.....	9.8	10	10.3	.....

NOTES ON THE CROPS.

CORN.

Sagadahoc County, Me.—On the first of September promised to be almost a failure, but warm weather and frequent rains, have given us quite a crop after all.

Androscoggin County, Me.—The warm weather of September and October ripened what corn was growing, which at one time promised to be an entire failure.

Windsor County, Vt.—The floods of October 4 and 5 took off a great deal of the corn in meadows, which will affect the prices in this locality.

Addison County, Vt.—The corn crop matured, and in quality is equal to the crops of our best seasons, though the quantity is a little deficient.

Orleans County, Vt.—Corn nearly an average crop, but not as well matured as last year.

Jefferson County, N. Y.—The favorable fall has given a fair average yield of corn.

Warren County, N. Y.—Corn was backward and small, but favorable weather has matured a much better crop than was expected.

Oneida County, N. Y.—The corn crop is better than anticipated, owing to the favorable fall.

Warren County, N. J.—Corn yields much better than was anticipated. Corn was set for an extra crop but was shortened by the drought, yet we have more than an average crop in the aggregate.

Hunterdon County, N. J.—The heavy rain of the 9th of October swept off corn in the shock and hay in the stack, and winter grains were badly washed.

Ocean County, N. J.—The drought shortened the corn crop fully fifteen per cent.

Sussex County, N. J.—The corn crop, the most important one of this season, is turning out much better than was supposed.

Hudson County, N. J.—The favorable fall weather has given us a much better corn crop than was anticipated.

Clearfield County, Pa.—Corn a light crop.

Elk County, Pa.—Corn turns out better than was expected, but not as well as last year.

Delaware County, Pa.—The corn crop did not ripen well.

Wayne County, Pa.—Corn crop medium—better than expected.

Clinton County, Pa.—The corn crop has turned out a fair one notwithstanding the unfavorable season.

Baltimore County, Md.—The corn crop is better than was expected, and it is worthy of remark that all fields that were badly tilled and in which weeds were permitted to grow were burnt up; but where the tillage was good and the weeds were eradicated, the crop was good, the drought having but little effect. The farmer's profit was in good tillage.

Queen Anne County, Md.—Some light lands, well drained and in good condition, made fair crops of corn, but low, wet and stiff lands are very deficient, some farmers not making enough corn for their own use.

Norfolk County, Va.—The best corn crop since 1860.

Gloucester County, Va.—The corn crop is better than expected. The stalk and blades were small, but the ears filled out well for the growth.

Nelson County, Va.—Corn on highland almost a total failure; on flats and rich slopes, where corn was planted early, there is about three-fourths of an average crop.

Wythe County, Va.—The corn crop is almost an entire failure, even lighter than expected.

King George County, Va.—Corn yields better than was anticipated.

Princess Anne County, Va.—The corn crop is very superior, both in quality and quantity, and such a product of corn fodder has not been realized for many years. Corn fodder is the hay crop of this county.

Farquier County, Va.—Early planted corn and potatoes have yielded fair average crops.

Hertford County, N. C.—Corn is short and inferior in quality.

Gaston County, N. C.—There has been no season in twenty years which has not given the farmer better results than the past year. Breadstuffs are alarmingly short.

Beaufort County, N. C.—The corn crop is a fair one and will equal that of last year.

Currituck County, N. C.—The product of corn will be at least double that of last year, when it was reduced one-half by rain.

Duplin County, N. C.—Corn much injured by drought, especially on upland.

Greene County, N. C.—The corn crop is considerably less than last year, both in acreage and product.

Camden County, N. C.—The corn crop has suffered less than other crops, and the yield will be an average.

Wayne County, N. C.—Corn product about two-thirds of a crop.

Caswell County, N. C.—The corn crop on flat lands has been injured by heavy freshets.

Newberry County, S. C.—Corn turns out light, even worse than was anticipated.

Union County, S. C.—The county has not made a supply of corn. Corn is now selling at $1 25 per bushel in the heap. Hogs for fattening are not abundant. Pork is expected to be high.

Fulton County, Ga.—The yield of corn is larger than was generally supposed.

Carroll County, Ga.—Corn in good bottoms is fine and yields more than was expected. Corn on uplands very poor.

Chattanooga County, Ga.—On gathering corn the crop proves not so large as anticipated. The yield falls forty per cent. below the crop of last year.

Bibb County, Ga.—Corn planted early, and manured, matured without being materially affected by the hot sun and drought, but the crop generally was seriously injured.

Independence County, Ark.—Corn wonderfully shortened by the drought.

Holmes County, Miss.—Short crop of corn—not enough for the use of the county.

Neshoba County, Miss.—The corn crop is short in quantity and light in quality, but approximated an average with former years.

St. Helena County, La.—Corn crop poor, from the fact that very little attention was given to the fertilization of corn lands, cotton generally being put in the best soil.

Tangipahoa County, La.—The corn crop is a good one in this county.

Blanco County, Texas.—More corn per acre than ever before.

Red River County, Texas.—The corn crop is a full average yield, and of very superior quality.

Lampasas County, Texas.—The largest and best corn crop ever grown in the county has been made and housed this season. Experiments are being made in the culture of cotton and the castor bean.

Coryell County, Texas.—Corn crop fine, with an average of about forty bushels per acre.

Attascosa County, Texas.—Corn crop considerably damaged by floods.

Walker County, Texas.—Corn turning out well, and is selling at fifty cents per bushel.

Ashley County, Ark.—The corn acreage shows a decrease, but the yield per acre is greater than last year.

Giles County, Tenn.—The corn product will be about half a crop.

Hickman County, Tenn.—Corn better than was expected; better in quality; less rotten corn than for several years.

Monroe County, Tenn.—About half a crop of corn; but what there is is sound and good.

Sevier County, Tenn.—Corn crop light but good.

Smith County, Tenn.—Corn turns out better than expected, and the quality is twenty per cent. better than the crop of last year.

Nicholas County, W. Va.—Lightest corn crop for several years; twenty per cent. short.

Kanawha County, W. Va.—Corn crop light but of good quality.

Braxton County, W. Va.—Corn crop an average and very sound.

Morgan County, W. Va.—Corn crop of good quality; but the county does not raise enough for home consumption, agriculture being neglected for the trade in bark, lumber, and cooper's stuff.

Carroll County, Ky.—Late corn was very materially injured by the cold weather of October.

Butler County, Ky.—A great deal of corn was frosted in October.

Russell County, Ky.—Corn unusually sound.

Trimble County, Ky.—The cold spell in October materially injured corn in the shock and in the field.

Pulaski County, Ky.—Favorable fall weather has made a much better corn crop than was expected. On lands well prepared by deep plowing, and planted early, and well worked, the yield is not much reduced.

Graves County, Mo.—Corn product about one-tenth over the crop of last year; quality about an average.

Lewis County, Mo.—The corn crop is not more than half an average, on account of the wet season.

Mississippi County, Mo.—Corn was very promising, but was injured by both storm and drought.

Adair County, Mo.—Corn crop twenty per cent. short.

Johnson County, Mo.—Though the season has been unfavorable, there is a big corn crop in the county.

Callaway County, Mo.—Corn, in timber land or rolling prairie, is very fine; flat prairie was too wet.

Cass County, Mo.—Corn more than an average crop, owing to increased acreage.

Grundy County, Mo.—Corn, on level land, a total failure; on rolling land the crop is good.

Holt County, Mo.—Corn crop equal, if not superior, to any ever raised in the county.

Cole County, Mo.—Potatoes frozen in the ground.

Hancock County, Ill.—There are thousands of acres of corn that amount to nothing. The average yield for the county is thought to be about eighteen bushels. Many hundreds of acres not worth cutting for fodder.

Boone County, Ill.—Small yield of corn, but the quality is good.

La Salle County, Ill.—Corn crop decreased thirty per cent. from that of last year, but the quality is good.

Effingham County, Ill.—An average corn crop.

Mercer County, Ill.—Favorable fall weather has made a fair corn crop out of poor material.

Winnebago County, Ill.—The yield of corn is below the general expectation, about the first of October. Much of it is soft, unfit to crib.

Harrison County, Ind.—The corn crop falls one-third short of that of last year.

Warren County, Ind.—The corn crop of this county is short one-half, and is poor in quality.

Delaware County, Ind.—Not more than half crop of corn, but the abundant wheat crop makes up the deficiency.

Martin County, Ind.—The late corn was much injured by the severe frosts of October, when it was barely out of "roasting ear."

Brown County, Ind.—Corn above an average crop, sound and well-filled.

Lorain County, Ohio.—The favorable fall weather brought up the corn crop to an average with that of last year, upon less acreage.

Portage County, Ohio.—The favorable fall has given a fair corn crop, sound and bright.

Holmes County, Ohio.—Corn, on high rolling lands, is better than an average; not so good on bottom lands. The corn lands of the county are mostly rolling.

Carroll County, Ohio.—Corn injured on low lands by wet weather and early frost, but upland corn is very good.

Greene County, Ohio.—Corn crop about twenty per cent. short, but of good quality.

Athens County, Ohio.—Corn crop better than was expected at date of last report.

Clinton County, Mich.—Increased yield of corn per acre, but decreased acreage; quality superior, and aggregate increase twenty per cent.

Oakland County, Mich.—The season has been so cold and wet that corn has not matured; not more than one-half sound and ripe.

Hillsdale County, Mich.—Corn crop better than expected at last report.

Ozaukee County, Wis.—The early frost killed what little corn was left.

Vernon County, Wis.—The early frost has killed all the late corn.

Brown County, Wis.—Corn ripened better than was anticipated in September, but the quality and quantity are much under an average.

Goodhue County, Minn.—White and yellow flint corn ripened well; dent corn unsound, the summer having been too cool and wet.

Le Sueur County, Minn.—The rot and frost have made the potato crop very light.

Floyd County, Iowa.—Corn does not yield as was anticipated; quality poor.

Harrison County, Iowa.—A good corn crop.

Page County, Iowa.—Corn crop better than last year.

Iowa County, Iowa.—Corn acreage considerably increased, but yield per acre and quality much reduced from last year, through want of cultivation, resulting from wet weather.

Cherokee County, Iowa.—Corn is heavy, but not all sound.

Pocahontas County, Iowa.—The favorable fall has matured a heavy crop of corn. The acreage would have been larger had not some of the farmers been afraid of early frost, resultant from the eclipse.

Hardin County, Iowa.—Corn crop twenty per cent. below that of last year in quantity, though equal in quality. There was a large increase

in the acreage, and but for the incessant rains the crop would have shown a large advance over last summer.

Nemaha County, Kans.—The largest and best crop of corn ever raised in the county. Last year the crop was a total failure.

Riley County, Kans.—A heavy crop of corn.

Franklin County, Kans.—The corn product is at least double that of last year.

Cloud County, Kans.—Large crop of corn—some lands averaging sixty bushels to the acre.

Johnson County, Kans.—Corn on rolling ground is good; on level ground poor, in consequence of rains. The aggregate yield is about the same as last year, considering increased acreage.

Merrick County, Neb.—Corn injured by early frost.

Cass County, Neb.—Corn will average forty bushels to the acre the county over.

Otoe County, Neb.—Corn is in excellent condition and is being rapidly gathered.

San Bernardino County, Cal.—Corn a heavy crop.

San Pete County, Utah.—Best crop of corn ever raised in the county.

COTTON.

Hertford County, N. C.—The drought has been severe upon all crops except cotton, which has done well.

Halifax County, N. C.—The drought has been less injurious to cotton than to corn, and the season has been so favorable since picking commenced that two-thirds of the crop was gathered by November 1.

Martin County, N. C.—Cotton matured much earlier than usual in consequence of the rust. The crop is coming in rather better than was anticipated, though it is not much above two-thirds of a fair crop.

Beaufort County, N. C.—Cotton has turned out better than was expected at the beginning of the picking season. The crop matured earlier than usual, and the weather for picking has been all that could be desired. Fully one-half the crop has already been sent to market. More fertilizers have been used this year than usual, and have paid well. Peruvian guano, among commercial manures, has paid best. Subsoiling before planting was done to some extent, and in all cases coming under the writer's notice, has been of great benefit to the crop.

Duplin County, N. C.—Cotton is much better than was anticipated, and the acreage is fully equal to that of last year. Large quantities of commercial fertilizers have been used, which with improved methods of cultivation have largely increased the yield of lint cotton over that of 1860.

Harnett County, N. C.—Cotton much injured by drought. The increase in aggregate crop is from the increased acreage put in cotton.

Wayne County, N. C.—Cotton yields surprisingly, considering the dry August. Farmers have cotton on the brain.

Mecklenburg County, N. C.—Although the receipts of cotton amount to double those of last year up to date, the crop will not average more than half a crop. Most of the crop has been gathered. The frost has killed the late bolls.

Montgomery County, N. C.—The acreage in cotton this year was thirty per cent. greater than last season, but the crop has never been shorter than the present season.

Greene County, N. C.—Cotton is coming in better than was expected

a month ago. The yield per acre is not so good as last year, but the acreage is larger and the product will be nearly the same.

Columbus County, N. C.—Cotton is better in this county this year than ever before—more of it planted.

Camden County, N. C.—Cotton crop almost a failure.

Newberry County, S. C.—Considering the increased acreage, the cotton crop will amount to about four-fifths of a crop.

Union County, S. C.—The cotton crop is light in this county, about half a full crop, and about twenty per cent. below the product of last year.

Anderson County, S. C.—The increased acreage will bring the cotton crop up to an average, though there is a decreased yield per acre.

Orangeburg County, S. C.—Either from the peculiar season, or the effects of the quantity and quality of the commercial fertilizers used, cotton is yielding less lint to the pound of seed cotton than usual, but it is of much better quality.

Brooks County, Ga.—The cotton crop is not as large as was anticipated two months ago.

Chattahoochee County, Ga.—Cotton is better than was expected the 1st of October.

Pulaski County, Ga.—The aggregate cotton product will equal the crop of last year, though the yield per acre has fallen off one-third to one-half.

Franklin County, Ga.—About one-third of a crop of cotton in this county.

Spaulding County, Ga.—Cotton is turning out better than was generally expected sixty days ago.

Pike County, Ga.—Cotton has suffered severely from dry rot and rust, which, together with the second drought, caused considerable falling off, notwithstanding the great amount of commercial manures used. The fertilizing generally paid well.

Carroll County, Ga.—Owing to the favorable weather for cotton opening, the crop will be about one-tenth larger than expected a month ago.

Chattanooga County, Ga.—The yield of cotton is not equal to that of last year, but the increased acreage makes the aggregate product as large.

Johnson County, Ga.—Cotton injured by the drought, but there being more planted in the county this year, the crop will be nearly equal to that of last year.

Stewart County, Ga.—Drought and intense heat, combined with strong dry air currents, have reduced the cotton crop nearly or quite fifty per cent. below that of 1868.

Bartow County, Ga.—The quality of the cotton crop is superior to that of last year, not having been damaged by rain.

Volusia County, Fla.—All crops except cotton have been cut short by the drought in this county.

Putnam County, Fla.—The product of cotton is equal to the crop of last year.

Jackson County, Fla.—The use of fertilizers this year has caused a greater diversity than in former years, yet the casualties to the cotton crop have been greater. The fall has been very dry, affording ample time to pick clean and secure a larger yield than usual, and the same cause has lessened the weight of seed and lint in proportion to the bulk.

Bradford County, Fla.—The cotton crop will not fall more than one-tenth short of that of last year.

Independence County, Ark.—Cotton was greatly injured by the drought,

but the favorable fall weather opens almost every boll, and the crop is being secured with less loss and waste, and the staple cleaner and in better condition, than at any time within the last twelve years.

Johnson County, Ark.—Bottom crop of cotton is good; middle crop, most squares and bolls fell off; top crop, bolls fully grown, with indications that all will open.

Dallas County, Ala.—On the 1st of November quite four-fifths of the cotton has been gathered. The prevailing prices and apprehension of a decline have stimulated early shipments and rapid sales.

Macon County, Ala.—The cotton crop shows an increase of ten per cent. over that of last year—due to increased acreage more than to increased production per acre.

Clarke County, Ala.—About twenty per cent. increase in cotton crop. I have used the soluble Pacific guano on worn lands, one hundred pounds, two hundred pounds, and four hundred pounds per acre. The increase has been from one hundred to three hundred per cent. The four hundred pounds produced a bale of five hundred pounds to the acre; other lots in like proportion.

DeKalb County, Ala.—An average crop of cotton.

Greene County, Ala.—The cotton crop has been gathered in superior condition, free from dust and trash.

Winston County, Miss.—The cotton crop generally is very late in this county; the early frost has cut off at least one-third.

Washington County, Miss.—The season was late, and frosts have been very severe, and labor is so scarce that not half the cotton in this county has been picked; the storms of December will bury thousands of bales in the fields.

Holmes County, Miss.—The late bloom of cotton was shed, and there is no top crop.

Lauderdale County, Miss.—While this county has not made the amount in pounds of cotton that was produced last year, the staple of the present crop is very superior; nine-tenths of the crop has been gathered. The price, 23½ cents per pound, will more than make up the loss in pounds, and the farmers are looking up. No lack of laborers.

Yalabusha County, Miss.—If the late bolls open there will be an increase of ten per cent. in the cotton crop; if not, the crop will fall short of that of last year.

Neshoba County, Miss.—The cotton yield does not sustain the promise made by the growing plants, and the crop will not exceed the product of last year.

Summit, Pike County, Miss.—This is one of the most important shipping points on the New Orleans and Jackson railroad. For the year ending August 31, 1868, there were shipped 8,201 bales; the shipments for the current year may reach 9,000 bales.

Winston County, Miss.—One-third of the cotton crop cut off by the early frost.

Yazoo County, Miss.—The favorable fall weather has brought the cotton crop nearly or quite up to that of last year.

Attala County, Miss.—Early cold weather has injured the cotton crop in this county.

Tensas County, La.—The fine fall weather has caused the cotton to open out finely, and so greatly facilitated the gathering of the crop that the product run thirty per cent. above that of last year; with an abundance of labor and fair weather the figures might be made to run still higher. Pickers get seventy-five cents to one dollar per hundred pounds, and still the cotton wastes in the fields.

St. Helena County, La.—The cotton crop, though greatly injured by the September storms, will equal that of last year, owing to the increased acreage.

Lavaca County, Texas.—Where grasshoppers did not injure it cotton makes fully a bale to the acre. The early planting produced an average crop. The late planting was cut short by grasshoppers—barely half a crop.

Dallas County, Texas.—This county will make about 4,300 bales of cotton.

Red River County, Texas.—The severe drought and extremely hot weather alone prevented an immense crop of cotton in this county, and a full average yield per acre and more than an average yield of lint is still reported.

Upshur County, Texas.—The cotton crop at one time bid fair to far exceed that of 1868, but the unfavorable season has reduced the product one-third.

Fayette County, Texas.—A decided improvement here in cotton culture, and where seed was well selected and planted early five hundred pounds of lint to the acre have been realized. The freedmen are working better this year than last, and have good crops except in the overflowed district.

Smith County, Texas.—The yield of cotton is better than was anticipated, the favorable fall weather compensating for the drought in a great measure.

Blanco County, Texas.—Season unfavorable for cotton. The average product will be about three hundred pounds seed cotton per acre.

Coryell County, Texas.—The cotton crop will average three hundred pounds of lint to the acre. The yield would have averaged five hundred pounds per acre, but for the overflows in the spring and early summer. This is the first season that cotton has been planted to any extent in this county.

Grayson County, Texas.—About six thousand acres in cotton in this county, which will average about two-thirds of a bale per acre if the full crop can be gathered.

Matagorda County, Texas.—Cotton much injured by worms and heavy rains, in consequence of which low lands made comparatively little.

Ellis County, Texas.—The drought reduced the cotton crop at least one-fourth, yet there will be a fair yield per acre, and the acreage in the county is considerably more than double that of last year. The quality is also good, and the crop has been nicely handled.

Ashley County, Ark.—This county will average about three hundred pounds lint cotton per acre on bottom lands, and about one hundred and fifty pounds on upland.

Prairie County, Ark.—The aggregate yield of cotton will be equal to the crop of last year, the area planted having been increased.

Rutherford County, Tenn.—One-third of a full crop of cotton. The best lands will yield about three hundred pounds of seed cotton, which in other years produced eight hundred to one thousand pounds. About two hundred pounds to the acre will be the average for the county.

POTATOES.

Waldo County, Me.—The extreme wet weather of October considerably damaged the potato crop.

Kennebec County, Me.—Many potatoes not yet dug, though there is

deep snow on the ground. Many will be lost. Recent rains increased the rot.

Sagadahoc County, Me.—The potato crop one month ago was considered extra, but now there is great complaint of the rot.

Androscoggin County, Me.—Potato crop short in quantity, but superior in quality.

Sullivan County, N. H.—The corn crop ripened, though two weeks late. No frost of any consequence until October.

Addison County, Vt.—Potatoes yielding well, but the late harvested are much infected with the rot.

Orleans County, Vt.—A larger yield of potatoes than last year, but the rot is more serious. From ten to twenty per cent. of the crop is under the snow, yet unharvested.

Norfolk County, Mass.—The root crop is fine and large.

Jefferson County, N. Y.—A great yield of potatoes, but they are affected by the rot in some localities.

Niagara County, N. Y.—A heavy crop of potatoes, but half have rotted.

Rensselaer County, N. Y.—Many undug potatoes frozen on 30th October.

Washington County, N. Y.—Potatoes are rotting badly.

Lewis County, N. Y.—Many potatoes frozen in the ground.

Oneida County, N. Y.—The potato crop is good, except such as did not ripen.

Wayne County, N. Y.—Potatoes rotting.

Ocean County, N. J.—The drought seriously affected the potato crop.

Hudson County, N. J.—The potato crop is large, and of good quality.

Elk County, Pa.—The potato crop is poor generally. Some are so poor or so much affected by the rot that farmers have not taken them from the ground. I find by careful experiment this season, that for this county, the Early Rose, the Goodrich, and the Garnet Chili are the best varieties for the early crop, and the Harrison for a late crop. Peach blows a total failure.

Delaware County, Pa.—Potatoes remarkably fine in quality. Some varieties which last year were very indifferent, are this season very good—owing, perhaps, to the dry weather.

Beaver County, Pa.—Potatoes are rotting to some extent.

Chester County, Pa.—Where potatoes were dug in hot weather, or were allowed to lay in the sun for several hours, they have rotted; but where carefully dug and kept out of the sun, there has been no decay. Where the rot set in among sun-exposed potatoes, it was arrested by sprinkling them with air-slacked lime.

Clinton County, Pa.—Potatoes are beginning to rot.

Bucks County, Pa.—Potatoes were mostly out of the way of the drought. Some instances of over four hundred bushels to the acre.

Wayne County, Pa.—Best potato crop in several years.

Clearfield County, Pa.—Potatoes rather a light crop.

Prince George's County, Md.—The potato crop suffered greatly from the heat and drought. The Orono and the Early Rose have yielded best in this section.

St. Mary's County, Md.—About half a crop of corn.

Queen Anne County, Md.—Potatoes were nearly all destroyed by the drought and the bugs.

Norfolk County, Va.—Sweet potatoes are a failure.

Nelson County, Va.—Late potatoes in northern exposures and light rich soil improved rapidly after the rains set in in September. Those

on lands exposed to the direct rays of the sun, and planted early, were failures.

King George County, Va.—Potatoes yield badly, and the tubers are unusually small.

Middlesex County, Va.—The drought reduced the late potato crop three-fourths, but owing to the large early spring crop, the aggregate product is greater than ever before in this county.

Hertford County, N. C.—Sweet potatoes almost a failure.

Stewart County, Ga.—Heat and drought have nearly ruined the potato and the pea crop. The potato crop has not been so poor, perhaps, in twenty years.

St. Helena County, La.—The sweet potato crop, an important interest in this county, is especially good.

Walker County, Texas.—Potatoes turning out well, and selling at twenty-five cents per bushel.

Kanawha County, W. Va.—There is a deficiency in the potato crop.

Graves County, Ky.—Potatoes of both kinds fall ten per cent. below the crop of last year, both in quantity and quality.

Lewis County, Mo.—Very fine crop of potatoes.

Worth County, Mo.—Nearly half the crop of potatoes lost by freezing in the ground.

Adair County, Mo.—Potato crop reduced twenty per cent. A great many frozen in the ground.

Johnson County, Mo.—Some potatoes frozen in the ground.

Callaway County, Mo.—A finer yield of potatoes was never known in the county—five times as many planted as last year.

Polk County, Mo.—Potatoes never were finer.

Grundy County, Mo.—Potatoes very abundant, with no market.

Holt County, Mo.—The potato crop of this year has never been surpassed, if equalled, in this county.

Hancock County, Ill.—Potato crop half dug when overtaken by frost. One-third injured by the freeze.

Rock Island County, Ill.—Many potatoes frozen. Not more than half dug at beginning of cold weather.

Madison County, Ill.—Potato crop larger and of better quality than last year.

Boone County, Ill.—Potatoes partly frozen in the ground.

La Salle County, Ill.—A fair yield of potatoes, but many have been frozen in the field.

Effingham County, Ill.—Potato crop above an average.

Tazewell County, Ill.—Potatoes in the ground October 25th one-half ruined.

Macoupin County, Ill.—One-tenth of the potato crop frozen in the ground.

Putnam County, Ill.—One-half of the potato crop ruined by the freeze in October.

Jackson County, Ill.—Potatoes injured by early frost.

White County, Ill.—Potato vines killed by frost before the roots fully matured, hence they are small.

Winnebago County, Ill.—The yield of potatoes is extraordinary, but about one-half the crop was in the ground at the time of the cold snap, 24th October, and about one-third of those were spoiled by the frost.

Clay County, Ill.—Large quantity of potatoes damaged by freezing.

De Witt County, Ill.—The potato crop is very large, but a large proportion was injured by frost.

Bureau County, Ill.—Three-fourths of the potato crop damaged by frost.

Harrison County, Ind.—The yield of patatoes, per acre, will fall short one-half; but the large increase of acreage will bring the aggregate product up to that of last year.

Johnson County, Ind.—Potatoes in the ground the latter part of October were injured to the extent of one-fourth by the cold weather.

Bartholomew County, Ind.—Potatoes injured by frost.

Elkhart County, Ind.—One-tenth to one-twentieth of the potato crop lost by freezing.

Union County, Ind.—Many potatoes not dug when overtaken by the cold weather the end of October.

Tippecanoe County, Ind.—The potato crop is perhaps the largest and best ever raised in the county.

Owen County, Ind.—One-eighth of the potato crop frozen and ruined.

Boone County, Ind—Potatoes, where dug but not securely housed, were damaged by the cold weather in October; those in the ground suffered less.

Warren County, Ind.—Potato crop better than for many years. They are being cooked to fatten hogs to supply the place of corn.

White County, Ind.—A considerable portion of the potato crop was destroyed by frost in October—one-fourth being frozen in the ground.

Steuben County, Ind.—An unexampled yield of potatoes, and of the finest quality.

Delaware County, Ind.—Quantities of potatoes frozen in the ground.

Logan County, Ohio.—Potatoes very abundant and very fine.

Geauga County, Ohio.—Potatoes have rotted badly.

Portage County, Ohio.—A heavy potato crop, but not more than half harvested when covered with the snow of 26th October.

Holmes County, Ohio.—An unusually large potato crop.

Brown County, Ohio.—Potatoes injured by the freeze.

Union County, Ohio.—Potatoes superior in yield and quality, with a large increase in acreage.

Ottawa County, Mich.—Potatoes average about two hundred bushels per acre, and are well ripened and free from rot.

Manistee County, Mich.—The potato crop is largely in excess of that of last year, when the crop was almost a failure.

Ontonagon County, Mich.—Most of the potato crop is covered by snow, but as the ground does not freeze they can be dug next spring.

Oakland County, Mich.—A large proportion of the potato crop is still in the ground.

Leelenaw County, Mich.—Nearly all the potatoes are snowed up and frozen.

Hillsdale County, Mich.—Potatoes on loose soil much injured by frost.

Polk County, Wis.—Potatoes have rotted badly.

Marathon County, Wis.—Half the potato crop rotten and useless.

Walworth County, Wis.—Fully one-half the potato crop frozen, mostly before digging.

Outagamie County, Wis.—Potatoes rotting badly.

St. Croix County, Wis.—Potatoes are late and some have been frozen in the ground.

Chippewa County, Wis.—A heavy crop of potatoes, but the wet weather has caused many to rot, and those left in the ground late have been frozen.

Brown County, Wis.—Many farmers planted no potatoes; those who planted in sandy soil realized good crops.

Meeker County, Minn.—Potatoes almost a failure.

Mille Lacs County, Minn.—Potatoes have rotted more than ever before.

Watonwan County, Minn.—Some complaint of potatoes rotting in the hill.

Goodhue County, Minn.—Potatoes injured by the bug.

Floyd County, Iowa.—Many potatoes frozen in the ground.

Black Hawk County, Iowa.—An unprecedented yield of potatoes, both in quantity and quality; but a large portion of them are frozen up in the ground.

Clinton County, Iowa.—Potatoes that were not dug before October 26 were frozen, and some that were dug but not sufficiently covered were destroyed.

Madison County, Iowa.—About half the potato crop lost by freezing in October.

Palo Alto County, Iowa.—Potatoes rotting badly.

Emmett County, Iowa.—A heavy potato crop and of fine quality except on flat or wet land, where they were attacked with the dry rot.

Montgomery County, Iowa.—An early frost has destroyed one-third of the potato crop.

Harrison County, Iowa.—Potato crop almost a failure; many rotted in consequence of the wet weather; and many were frozen in the ground in October.

Brenner County, Iowa.—The ground frozen to the depth of two inches in October, with most of the potato crop undug.

Page County, Iowa.—An extraordinary crop of potatoes. One farmer dug 350 bushels from 136 rods.

Cherokee County, Iowa.—Potatoes have suffered much from rot; the peach-blows were nearly exempt.

Pocahontas County, Iowa.—About one-third of the potatoes have rotted.

Linn County, Iowa.—Some potatoes rotted and large quantities were injured by frost.

Monona County, Iowa.—Up to within ten days of digging time there was promise of a most remarkable potato crop, when the rot commenced and destroyed a great quantity, and then the freeze destroyed a large portion of those that escaped the rot.

Buchanan County, Iowa.—Large crop of potatoes, but much injured by early frost.

Jefferson County, Kans.—Potatoes badly frosted in October—large quantities yet in the ground. The yield in many instances has been from 300 to 500 bushels per acre. Prices, 20 to 25 cents per bushel.

Ottawa County, Kans.—Potatoes damaged one-tenth by cold weather.

Atchison County, Kans.—One-third of the potato crop frozen in the ground.

Cloud County, Kans.—Heavy crop of potatoes—250 bushels to the acre.

Coffey County, Kans.—Many potatoes frosted.

Washington County, Kans.—Large quantity of potatoes frozen in the ground.

Douglas County, Neb.—Potatoes rotted to some extent in low grounds.

Merrick County, Neb.—Half the potatoes frozen in the ground.

Pawnee County, Neb.—Potatoes in the ground injured by October frosts.

Otoe County, Neb.—A great many potatoes frozen in the field.

San Bernardino County, Cal.—A large crop of potatoes.

TOBACCO.

Baltimore County, Md.—The culture has been almost entirely discontinued in this county.

Buckingham County, Va.—A short crop of tobacco; quality inferior.

Nelson County, Va.—Tobacco, late as it was, rapidly improved in September and October. Where it had been forced early in the growing season, on high dry land by fertilizers, it was a complete failure.

Iredell County, N. C.—The weather being so dry the tobacco crop was cut short, but will make more than has ever been produced in this county before. The farmers have turned their attention to tobacco culture, and this is likely to become the chief crop.

Yadkin County, N. C.—The tobacco crop has turned out much better than was expected early in the season.

Caswell County, N. C.—The tobacco crop is short in quality and quantity, compared with the crop of last year.

Sevier County, Tenn.—Tobacco crop light, but of very good quality.

Smith County, Tenn.—The tobacco crop is larger and of better quality than for years.

Carroll County, Ky.—The cold weather of October entirely destroyed one-twentieth of the tobacco crop of the county and injured much of the remainder.

Livingston County, Ky.—Late tobacco much injured by frost in the house.

Hopkins County, Ky.—The severe frost in October has injured the tobacco crop, probably to the amount of one-tenth.

Gallatin County, Ky.—Tobacco crop seriously injured by the late freeze—to such an extent that not more than one-half of the crop made will come into market.

Ohio County, Ky.—The late frosts have seriously damaged the tobacco crop of this county.

Butler County, Ky.—All the late cut of tobacco was frozen quite hard in October—much in the house and some on scaffolds.

Henry County, Ky.—The October freezes, which commenced as early as the 20th, greatly damaged the tobacco crop of the county, large quantities of which were unhoused, hanging in a comparatively green state upon scaffolds in the fields.

Trimble County, Ky.—The tobacco crop was seriously injured in the field, ont he scaffolds, and in the house, by the freeze of October. The damage will amount to hundreds of thousands of dollars.

Pendleton County, Ky.—Tobacco was put in the house in fine condition, but the crop was much injured by the October freeze.

Pulaski County, Ky.—But little tobacco planted this season.

Graves County, Ky.—Tobacco crop reduced ten per cent. as compared with the product of last year, both in quality and quantity. Causes: scarcity of plants, dry weather, and early frost.

Vinton County, Ohio.—The drought shortened the tobacco crop, but the quality is so much better than usual that the money product will be nearly equal to that of last year.

Brown County, Ohio.—About 25th October tobacco was seriously injured by freezing in the barns; loss estimated at from one-third to one-half of the crop.

FRUIT.

Waldo County, Me.—The great gale in September seriously damaged the apple crop.

Androscoggin County, Me.—Apples and pears almost a complete failure; grapes not more than half a crop.

Plymouth County, Mass.—The September gale stripped our trees of nearly all their fruit.

Suffolk County, Mass.—The fruit was all blown off in the September gale.

Kent County, R. I.—The violent gale of September 8 almost totally destroyed the apple crop in this county and State.

Niagara County, N. Y.—A heavy crop of apples. Grapes almost a total failure; the Isabella has not ripened, the Delaware is very poor, and the Hartford Prolific is the only variety which has matured.

Monroe County, N. Y.—Apples seriously injured by the hard freeze of the 26th of October.

Genesee County, N. Y.—One-half the apple crop has been exposed to the cold weather.

Erie County, N. Y.—Nearly all the grapes and thousands of bushels of apples frozen.

Orleans County, N. Y.—Apples injured by frost.

Ocean County, N. J.—The cranberry crop has been shortened (by the hot sun scalding the berries) about one-fifth, so that the crop is not much above an average.

Berks County, Pa.—Apples more abundant than for years.

Delaware County, Pa.—Our apple crop is the finest grown for years.

Queen Anne County, Md.—Grapes have been abundant, the Concord proving the best.

Nelson County, Va.—Apples are small and defective.

King George County, Va.—Apples are fine in quality and plentiful.

Martin County, N. C.—The grape (Scuppernong) crop was never better. This county is especially adapted to this culture.

Currituck County, N. C.—Cranberries grow wild in the swamps, and have this year produced more than an average crop.

Chowan County, N. C.—The grape crop is very fine. There is a black Scuppernong vine in Mr. Cannon's vineyard that measures four feet in circumference two and a half feet from the ground. It is forty-five years old from the seed and is supported by 70 posts; yields 105 bushels of grapes, from which Mr. C. makes 315 gallons of wine.

Buxton County, W. Va.—The apple crop is very good both in quantity and quality,

Lewis County, Mo.—A great crop of apples, but many were frozen upon the trees.

Moniteau County, Mo.—Great quantities of apples were frozen on the trees in October.

Adair County, Mo.—Grapes, apples, and pears will average 20 per cent. more in quantity than last year.

Johnson County, Mo.—Thousands of bushels of apples frozen.

Callaway County, Mo.—A very heavy apple crop, but many bushels have been injured by cold weather.

Polk County, Mo.—One-fourth of the apple crop frozen on the trees the latter part of October.

Cass County, Mo.—Grapes rotted badly, and apples and other fruits were injured by hail early in the season.

Buchanan County, Mo.—Half the apple crop was frozen in October.

Cooper County, Mo.—The apple crop is larger than ever before known in the county, but many have been destroyed by frost. A large proportion will be made into cider.

Grundy County, Mo.—Many fruit trees injured by blight and scab. Grapes mildewed. Pears and apples inferior.

Cole County, Mo.—Apples frozen on the trees.

Hancock County, Ill.—Large quantities of apples frozen on the trees, so that they are useless, except for cider.

Rock Island County, Ill.—Concord grapes good; nearly all others failures.

Madison County, Ill.—A medium crop of apples only in a few orchards. Grape crop diminished by rot, particularly on the Catawba. Concord and the Norton's Virginia suffered but little.

Warren County, Ill.—Early frosts have done much damage to the apple crop.

Tazewell County, Ill.—Apples frozen solid on the trees, October 25.

Clay County, Ill.—Many apples injured by frost.

De Witt County, Ill.—Thousands of bushels of winter apples ruined by frost.

Bureau County, Ill.—About half the apple crop damaged by freezing weather.

Johnson County, Ind.—Apples on the trees injured by the October freeze. The sour varieties seemed to stand the cold weather the best.

Bartholomew County, Ind.—One-third of the apple crop injured by frost.

Union County, Ind.—Many apples frozen on the trees.

Owen County, Ind.—Nine-tenths of the winter apples so badly frozen as to be fit for cider only.

Dearborn County, Ind.—October 27, apples frozen upon the trees.

Boone County, Ind.—Thousands of bushels of apples were frozen upon the trees the latter part of October. Those in heaps on the ground, covered with snow, were not injured.

Warren County, Ind.—There is a cranberry marsh in this county of two hundred acres. The crop is immense, the wet season having been favorable.

White County, Ind.—About two-thirds of the winter apples were destroyed by the freeze in October.

Posey County, Ind.—A great many apples frozen on the trees.

Steuben County, Ind.—The heavy snow storm of 21st and 22d October ruined the winter wheat. Thousands of bushels of apples are being made into cider. The best sell at twelve and a half cents per bushel.

Park County, Ind.—Two-thirds of the apple crop frozen on the trees.

Brown County, Ind.—Apples frozen on the trees in large quantities; fit for cider only.

Fountain County, Ind.—A large portion of the apple crop frozen on the trees. Fit only for poor cider.

Franklin County, Ind.—Apples frozen on the trees.

Delaware County, Ind.—Fully half the apple crop frozen on the trees.

Vinton County, Ohio.—The apple crop is larger and better than any preceding crop in this county. Grapes were badly damaged by insects.

Logan County, Ohio.—One-third of the apple crop destroyed by freezing.

Geauga County, Ohio.—Some varieties of grapes have not ripened as well as usual, owing to rust.

Jackson County, Ohio.—Many apples frozen on the trees.

Greene County, Ohio.—Best apple crop in several years.

Columbiana County, Ohio.—The grape crop almost an entire failure.

Harrison County, Ohio.—Grapes badly frosted. Apples, about half a crop, and inferior in quality.

Athens County, Ohio.—A good apple crop, but many thousands of bushels have been frozen on the trees.

Lucas County, Ohio.—One-third the apple crop frosted upon the trees.

Branch County, Mich.—Nearly one-half of the winter fruit injured by freezing.

Van Buren County, Mich.—Best crop of fruit generally for ten years, but poor season for grapes, they not having ripened well. More cider than ever before made in the county.

Calhoun County, Mich.—One-third of the apple crop ruined by frost, except for cider. Not less than one hundred thousand bushels frozen in the county.

Ontonagon County, Mich.—A large crop of apples, but the early frost injured them before ripening.

Oakland County, Mich.—Not more than half the apple crop gathered, and the apples are frozen so hard as to be worthless, except for cider or vinegar.

Hillsdale County, Mich.—The apples were shaken down into the snow to save them, but about half were frozen on the trees.

Leelenaw County, Mich.—Nearly all the apples snowed up and frozen.

Allegan County, Mich.—The apple crop yet on the trees and frozen.

Warren County, Iowa.—There are in the county double the number of bearing apple and pear trees that have been reported heretofore.

Jefferson County, Kans.—The fruit crop, with the exception of peaches, has been abundant. Apple trees only four to six years old yield one to five bushels. Pears very fine. All well saved.

Franklin County, Kans.—Several years' observation and experience convince our correspondent that the light-red soil of the upland prairies of that county is well adapted to grapes. Grapes planted on black soil, somewhat stony, inclining to moisture, blighted, while those only a few rods from them, on the former, produced well.

San Bernardino County, Cal.—Fruits of all kinds, except grapes, abundant. Grapes not quite an average.

Tuolumne County, Cal.—The grape crop suffered severely from mildew, caused probably by late spring rains. A poor year for fruit. Considerable attention has been paid this season to starting mulberry nurseries.

Napa County, Cal.—The vintage was twenty to thirty days earlier this year than last, and the grapes became much shriveled before being gathered. In many localities mildew seriously affected the crop. The aggregate crop will be about nine-tenths the product of last year, there being more vines in bearing.

Santa Clara County, Cal.—The fruit crop has been above an average in quantity and quality.

Mendocino County, Cal.—Fruit yield below an average, but the growth of the young orchards has more than made up the deficiency.

Lane County, Oregon.—Apples yield well, but the general product does not increase, for the reason that people have just discovered that trees are short-lived, and orchards have not been sufficiently replanted.

MISCELLANEOUS.

Kennebec County, Me.—The yield of buckwheat is small, but the quality is excellent.

Franklin County, Me.—October was unusually wet, and the freshets did very heavy damage to farms and crops. Whole crops of corn, beans, and pumpkins were swept off, beside buildings well filled with hay, &c.

Addison County, Vt.—Buckwheat yields an abundant crop. The hay crop is one of the largest ever produced in the county; increased in most localities by the great growth of red and white clover. The freshets of October swept away entire fields of buckwheat and corn, cut and stacked.

Grand Isle County, Vt.—Buckwheat, as far as threshed, yields heavily.

Jefferson County, N. Y.—There is an abundance of hay of good quality. Our hay is improving in quality and quantity every year, in consequence of farmers top-dressing meadow-land.

Schenectady County, N. Y.—Broom-corn yields an average crop, and is well cured.

Ocean County, N. J.—Buckwheat crop seriously affected by the drought.

Sussex County, N. J.—The amount of butter made in this county will fall very considerably short of the average, owing to the shortness of the grass in summer and the early frost.

Elk County, Pa.—Buckwheat falls below the average in quality, owing to the wet season and early frost.

Westmoreland County, Pa.—Buckwheat proves almost an entire failure. The wet weather almost entirely destroyed the grasses over a large portion of the county.

Bradford County, Pa.—Buckwheat, on threshing out, proves an average crop.

Bucks County, Pa.—The culture of tobacco is annually increasing in the lower part of the county. The crop is very remunerative.

Lawrence County, Pa.—Not more than half a crop of buckwheat, the hot suns of August killing the plant while in bloom.

Cecil County, Md.—Buckwheat seriously injured, especially in the southern part of the county.

Wythe County, Va.—The buckwheat crop is scarcely worth reaping, owing to the drought.

Fairfax County, Va.—The drought cut off nearly the whole of the winter cabbage and turnip crops.

Middlesex County, Va.—A large black and yellow worm, one and a half to two inches in length, attacked the turnip crop in some sections, and nearly or quite destroyed the tops.

Georgetown County, S. C.—A great deal of rice planted in June has suffered from the frost, and the crop will be short and of inferior quality.

Richland County, S. C.—The pea crop is almost a total failure.

Barnwell County, S. C.—Crops short. The best land was selected, and more manure used than last year, and the crops were generally well cultivated; but the season was too dry.

Orangeburg County, S. C.—Owing to the extremely dry fall, the pea crop is a failure.

Pickens County, Ga.—Tobacco is nearly a full crop and of good quality.

Pulaski County, Ga.—Sugar crop reduced twenty per cent. by the drought. Peas reduced forty per cent.

Johnson County, Ga.—Sugar-cane, peas, and potatoes were severely injured by the drought.

Putnam County, Fla.—The only crop with us that exceeds an average is the orange crop, and the quantity upon the trees is truly surprising and is without precedent. Of lemons and limes there are scarcely any, the frost having destroyed the fruit-buds, though it did not generally injure the trees.

Attala County, Miss.—Corn is poor; no mast; and the hog prospect is perhaps as bad as we ever had. Enough stock, but a lack of feed.

St. Helena County, La.—The cultivation of broom-corn has attracted considerable attention, and the culture has proved a marked success. The average yield has been about one thousand pounds per acre, worth $100 to $140.

Perry County, Tenn.—The peanut crop injured to some extent by frost. Product for this county, about 150,000 bushels, which are readily selling to speculators at $1 60 per bushel. The average product per acre this year is eighty bushels where good stands were secured.

Smith County, Tenn.—There is good mast in the woods, and all the hogs will be fattened, though the number is much less than last year.

Laurel County, Ky.—The mast is good in this county, and hogs are fattening upon it.

Logan County, Ohio.—Hog crop good in quality, but below an average in quantity.

Union County, Ohio.—Sorghum is inferior; but few patches have ripened sufficiently to make good sirup.

Polk County, Wis.—The season has been very wet, and much hay has been damaged; hundreds of tons totally destroyed.

Walworth County, Wis.—The most marked loss of crop for years in this county is the failure of the clover-seed crop. This crop is usually large, but this year it is an entire failure; no seed in first or second crop.

Outagamie County, Wis.—Thousands of tons of hay on the marshes have been left uncut on account of the high water.

Monroe County, Wis.—The crop of wild cranberries in this county will probably reach 3,000 bushels.

Jackson County, Wis.—A great quantity of hay has been destroyed by the fall rains, and much more damaged.

Rock County, Wis.—I am fully persuaded that the yield of wheat in Rock County will not exceed seven bushels per acre; oats, twenty-five bushels; corn, fifteen bushels of No. 2 Chicago grade; and I am equally confident that Rock County is fully up to any county in Southern Wisconsin or Northern Illinois.

Chicago County, Minn.—About half the hay crop destroyed by October floods. Hay scarce and poor.

Meeker County, Minn.—Hay is scarce, but much grass was cut after the first frost, which, though scarcely to be called hay, will help out.

Watonwan County, Minn.—The sorghum crop is a complete failure.

Washington County, Iowa.—The yield of honey in this locality is greater than for the past six years.

Palo Alto County, Iowa.—Sorghum has not done well the past season; the wet weather caused much of the seed to rot. Sorghum will grow well in this county, but the seed is not good, being a mixture of different varieties.

Harrison County, Iowa.—A good crop of sorghum.

Page County, Iowa.—Sorghum culture is declining.

Osage County, Kans.—Prairie fires frequent and terrible; much hay and many animals burned.

Woodson County, Kans.—The buckwheat acreage was double that of last year, but the yield per acre will not be more than half an average. A large area was sown for bee range, and the honey crop has been enormous.

Jackson County, Kans.—Honey more abundant than usual. The Italians excel.

Pawnee County, Neb.—This county will this fall turn out about twenty-five thousand gallons sorghum sirup.

San Bernardino County, Cal.—An immense crop of barley with increased acreage.

San Diego, Cal.—The yield of barley and wheat is the largest ever harvested in this county.

Siskiyou County, Cal.—The wool clip this year has been good, with the prospect that next year the clip will be larger than for many years.

Benton County, Oregon.—It is estimated that one-fourth of the wheat grown in this county will be unfit for bread, on account of the grain swelling before it was threshed.

Lewis County, Washington Territory.—Fall grazing better than ever before. Cattle in good condition.

EXTRACTS FROM CORRESPONDENCE.

EXPERIMENTS WITH SEEDS.

Agricultural College, Centre County, Pa.—The oats and barley received from the Department of Agriculture in the winter and spring of 1868–69 were committed to William C. Huey, assistant superintendent of the Central Experimental Farm connected with the college, for trial upon the experimental plats, each of which contains exactly one-eighth of an acre. The results, extracted from his interesting report, are given in the following table, showing the time of sowing, cutting, and housing, and the product in pounds in the sheaf and in the grain:

	Sown.	Cut.	Housed.	Product—pounds.	
				Sheaf.	Grain.
EXCELSIOR OATS.					
Plat No. 105	April 14	July 30	August 2	700	257
Plat No. 106	April 14	July 30	August 2	690	260
Plat No. 501	May 3	July 30	August 2	725	237
WHITE SCHONEN OATS.					
Plat No. 503	May 3	July 30	August 2	780	257
SOMERSET OATS.					
Plat No. 505	May 3	July 30	August 3	525	206
SAXONIAN BARLEY.					
Plat No. 502	May 3	July 30	August 2	650	192
PROBSTIER BARLEY.					
Plat No. 504	May 3	July 30	August 2	520	170
COMMON FOUR-ROWED BARLEY.					
Plat No. 104	April 12	July 30	August 2	505	209

From this table it will be noted that the several varieties produced are as follows:

Excelsior oats, plat No. 105 ..... 64¼ bushels per acre.
Excelsior oats, plat No. 106 ..... 65 bushels per acre.
Excelsior oats, plat No. 501 ..... 59¼ bushels per acre.

White Schonen oats, plat No. 503.....64¼ bushels per acre.
Somerset oats, plat No. 505.....51½ bushels per acre.
Saxonian barley, plat No. 502.....32$\frac{40}{47}$ bushels per acre.
Probstier barley, plat No. 504.....29 bushels per acre.
Common four-rowed barley, plat No. 104.....35$\frac{27}{47}$ bushels per acre.

The Pennsylvania State Agricultural Society, at the exhibition in Harrisburg, October 1, 1869, awarded to Mr. Huey the premium for the best bushel of barley—Probstier; also the premium for the best samples of newly introduced grains valuable to farmers, embracing the Excelsior, Somerset, and Schonen oats, and the Probstier and Saxonian barley, produced as above stated. The Excelsior oats and the Probstier barley were also severally awarded the first premium by the Centre County Agricultural Society at the exhibition in Bellefonte, October 8, 1869. The White Schonen oats matured later than the other varieties, and were cut a few days before they were fully ripe. This variety and the Excelsior are likely to prove very valuable additions, and the Commissioner of Agriculture is entitled to the thanks of the community for their introduction.

Opelika, Ala.—I herewith report the result of an experiment with soluble Pacific guano applied to cotton. I left three rows without guano in the center of a two-acre lot. As the surface is inclined at an angle of 20 degrees, and as the movement of the top is therefore down this inclined plain, rendering appreciably more productive each succeeding lower row, nine rows were used for the test, three rows next above and three rows next below the rows in which no guano was used. The rows were 300 feet long. There were 185 stalks in each of the three rows without guano, and 200 stalks in each of the rows to which the guano was applied. The stand was poor; the weed was so small that at least 400 stalks to the row would have been sustained. The rows were three feet apart; seed common; planted April 15. The culture was deep, but I am convinced that shallow culture would have been better. Land, poor, sandy, pine woods. Nearly the entire crop was in boll before August. No late crop, in consequence of the drought. One hundred and sixty pounds of the guano was used to the acre. The result was as follows, showing an increase of nearly one hundred per cent. attributable to the application of guano:

	Three upper rows. (With guano.)	Three middle rows. (Without guano.)	Three lower rows. (With guano.)
	Lbs.	*Lbs.*	*Lbs.*
First picking, September 7	11¼	1½	12½
Second picking, September 14	5	1½	6
Third picking, September 24	6	3½	6
Fourth picking, October 21	4½	4½	4½
Fifth picking, November 1	2½	2½	2½
Sixth picking, November 20	3½	3¾	4
	32¾	17⅓	35½

Piscataquis County, Me.—Sowed one quart Saxonian barley. Owing to heavy rains soon after it was sowed, fully one-third of the seed was lost. Every farmer who has seen it pronounces it ahead of anything hitherto seen. Arnautka spring wheat: The ground was wet and many

kernels failed to grow. Then the worms attacked it, and at one time I would have been willing to sell the entire crop for the seed, but by a liberal distribution of ashes I saved enough to harvest a little more than six for one. I am very hopeful in relation to this variety; so are my neighbors, who would buy it at extravagant prices, but that wheat is not for sale. Black Swedish oats: The crop was an average. As their appearance is so different from other varieties they would be less saleable, and therefore I do not think they will be profitable. Onions: Of the many varieties several did passably well, but the best crop was raised from the Weathersfield large red.

Sullivan County, N. H.—From two quarts of the Arnautka spring wheat the yield was thirty quarts. From one quart of barley received from the Department the product was one bushel, weighing 51 pounds.

Addison County, Vt.—I herewith most respectfully report the product of four packages of Arnautka spring wheat, received in April last, sown the 1st of May on clay land plowed the fall before, highly manured and harvested the second week in August. When threshed it produced 176 pounds, nearly three bushels. The straw stood strong, the heads were heavy, and the berry was long and full, and not in the least injured by the wheat midge. If it continues to produce as well, it may prove as valuable to this section of country as the Black Sea wheat, which was originally introduced from near the same place. One package of black oats received and sown was a perfect failure; they fell and did not head. One package of single rowed barley produced highly, and is not considered as valuable here for malting as the double rowed barley.

Windham County, Conn.—The Polish wheat sent me last fall was sowed October 10, a month later than usual for winter grain. It barely appeared above ground before winter set in and, as might have been expected, it was badly winter-killed. A portion survived, and I harvested one and a half bushels of good wheat, and have sown the whole of it under more favorable auspices. The English oats you sent last spring did finely. We have saved all for seed. The black oats did not do so well. The Six-weeks turnips were inferior in quality.

Cumberland County, N. J.—The English rough-chaff wheat received from the Department proved an entire failure in this county. The Schonen oats did well.

Dauphin County, Pa.—The rough-chaff wheat received from the Department in the fall of 1868 came rather late in the season. I however put it out in good ground. It was late in maturing, and was almost entirely destroyed by the fly, while our red (Lancaster) Mediterranean was not in the least affected. The white Swedish and Schonen oats are remarkably fine, yielding largely and weighing nearly forty pounds to the bushel. For this latitude I could wish for nothing better. The black oats are also superior to those in common use here, but I judge not equal to the varieties above named. The Saxonian barley also did exceedingly well with us, and I judge it to be a variety worthy of the most extensive distribution.

Prince George's County, Maryland.—The Talavera wheat received from the Department yielded at the rate of fifteen bushels per acre, though from some cause the grain was shriveled more than usual. The barley proved fine, and yielded at the rate of thirty bushels per acre. The quart of Black Swedish oats yielded one bushel of clean oats, weighing twenty-nine pounds. The White English oats proved poor; both sown on similar land, with similar culture; both land and culture good.

Tazewell County, Virginia.—The twelve pounds of Tappahannock wheat received from the Department about the middle of October, 1868, pro-

duced two hundred and fifty pounds of most beautiful wheat; in fact, the finest grain ever seen in this county. The straw was a beautiful golden color, the grain plump and very fair. It ripens some ten or twelve days earlier than any other kind, and the number of stalks from a single grain is from twelve to fifteen. It was injured in various ways by fowls, rabbits, &c., and should have been sown at least one month earlier.

Grayson County, Texas.—The Tappahannock wheat sent me last fall yielded about forty bushels per acre, weighing sixty-three pounds per bushel.

Montgomery County, Arkansas.—One bushel of Tappahannock wheat from the seed (one peck) sent from the Department last fall was exhibited at the State fair held at Little Rock, on the 12th to the 15th instant, and obtained the *first premium therefor.*

Polk County, Tenn.—The peck of Tappahannock wheat received from the Department one year ago was sowed in stiff mulatto soil, without manure, and the yield was fourteen fold better than other varieties on the same soil.

Edmonson County, Ky.—The peck of Tappahannock wheat sent me by the Department last fall was sown in tobacco ground, and yielded five and one-fourth bushels of No. 1 cleaned wheat, which is an extraordinary yield for our county for any kind of wheat.

McCracken County, Ky.—My Tappahannock wheat was very fine, probably better than any other variety among us. I sowed all I saved (one and a half bushel) in fair land, and hope to get seed of it for next fall. Of the oats and barley sent, none is good here but the White Schonen oats, which produces tolerably.

Sangamon County, Illinois.—The Goodwin's Imperial watermelon seed received from the Department, March, 1869, was planted for trial. The melons are excellent. They were of medium size, round, light green, and with a very thin rind; flesh red, fine grained, and very sweet; seeds small and red, with black eyes. A few of the melons differed from the above description by being larger and of a dark green color. The Goodwin's Imperial is certainly the best watermelon I ever tasted. The only objections to it are that it is not quite so early as some others, the Mountain Sweet, for instance, and for show in market it is rather small. The Early Bassano beet, the New Pine-apple beet, and the Dwarf Deep Blood Red beet, received from the Department last March, were planted April 17. The New Pine-apple is the best of the three.

Seeds of the following varieties of turnips were received from the Department last June: 1. Dicken's Yellow Stone; 2, Dicken's White Stone; 3. Dicken's Green-top Yellow; 4. Dicken's Mammoth Red Globe; 5. Dicken's Hardy Green Round: 6. Dicken's Defiance Purple-top Swede; 7. Dicken's Purple-top Yellow; 8. Pomeranian White Globe. They were planted on the 6th of August, side by side, and the same time with the Purple-top Strap-leaf turnip, which variety we had grown before and knew to be good. They were all harvested on the 29th of October. The Purple-top Strap-leaf did first rate, but none of the others made a very good stand. There were, however, some very good-sized specimens of each of the other varieties, except the Defiance Purple-top Swede, which was an entire failure. No. 4 were mostly small; so also Nos. 7 and 8. Nos. 1, 2, 3, and 5 were very good in size and quality and handsome in appearance. Nos. 1 and 3 were very much alike, the former being perhaps the harder and the latter the sweeter of the two. Nos. 2 and 5 seem to be the best of the whole lot. What strikes me as most remarkable is that each variety is apparently so true

to name. The seed seems to have been unusually pure for turnip seed. Perhaps the most important result of this experiment is to beget confidence in the source from which the seeds were obtained.

Yellow Springs, Ohio.—Last season I received from the Department five small papers of sorghum seed. It was planted in tolerably rich clay land, and well worked. The stalks were large and smooth, and generally well headed. It yielded No. 1 molasses, very clear and sweet, at the rate of two hundred gallons per acre. The yield might have been greater had the growth not been impeded by drought. I have saved five bushels of pure seed.

Erie County, Ohio.—From the one quart of Tappahannock wheat received from the Department three years ago, I have now on hand one hundred and fifty-six bushels of most splendid wheat, raised from six bushels sown last fall. I believe this wheat will prove to be just the thing for this section. It does not lodge, and it ripens early. The Brewer's Delight barley does not do for this section. Two years' trial shows that it lodges and rusts.

Bay County, Michigan.—The Tappahannock wheat sent me last fall was sown on the 6th of October, and in the spring it bid fair for a good crop, but as soon as it headed out it was attacked with the rust and midge, and so much injured that it was hardly worth threshing. The Arnautka spring wheat did well, and is the best spring wheat I have ever seen. The White Schonen oats did remarkably well; the straw was very stiff, the heads large, and the oats weigh forty-six pounds to the bushel. The Black Swedish oats did not do well. The Boston Marrow squash, Tilden tomato, and Early Yellow beans, were excellent. Carter's Leviathan peas, and the Imperial Wonder peas, yielded ten-fold, fine flavored. The Lenormand Short-stemmed cauliflower is the best I ever saw.

Pierce County, Wisconsin.—Eight pounds of Arnautka spring wheat, sown April 26, threshed September 20, produced thirty-one pounds of excellent berry. Black Swedish oats cannot recommend on account of color.

Rock County, Wisconsin.—From the ten pounds of the Arnautka wheat received from the Department I have threshed out nearly four bushels of seed fit for re-sowing.

Canton, Lewis County, Missouri.—I send you a report of seeds experimented with the past season. The oats and barley were sowed thinly in one corner of my oat field broadcast, April 6. The Saxonian barley was not more than a foot high, and so much poorer than the Probstier growing near by, that I only saved the latter. Of oats I saved three pecks Early Surprise, that I raised the year before from one quart of seed, which yielded nine and a half bushels, weighing thirty-two pounds per bushel. These were about three days earlier than our common black oats, and about a foot higher, averaging five and one-fourth feet in height, but yielding no better and weighing just the same per bushel. The Schonen, one pint, yielded eight and a half, measuring eleven quarts, which would be twenty-four and a half pounds per bushel; they were taller than any other, and about a week later than the Surprise. Black Swedish, one quart, yielded eighteen pounds, measuring twenty quarts, which is twenty-eight pounds per bushel; they are very late, a week later than any others, but they may be earlier as they become acclimated. The yield for these varieties was as follows: Early Surprise oats, from one pound, fourteen and a half pounds; Schonen oats, from one pound, eight and a half pounds; Black Swedish oats, from one pound, nine pounds. Narraganset sweet corn, very early, but

small; Asylum sweet corn, large and good. Egg-plant did not succeed, the season being too cold. Purple Vienna Kohl-Rabi, not very good, too long and slender. Large Early York, Matchless, and Superfine Early cabbage, small and early; could hardly be told apart except for the labels, though I think the Matchless the best. Brunswick Short-stemmed, Schweinfurt Quintal, Large Lake Bergen, American Drumhead, Red Dutch, and Lenormand's cauliflower, were all planted the same day, and transplanted the first week in June. Of these varieties the Brunswick nearly all formed solid good-sized heads; the Schweinfurt Quintal, large and loose heads, very tender and fine flavored; none of the other kinds headed at all. I have planted the Red Dutch cabbage several times, but never could raise a head. Of about one hundred cauliflowers set out, I raised two small heads. I never could succeed in growing them in this climate; they will not head, no matter how I treat them. The Mangel-wurzel and the white French sugar beet promised to be first-rate until taken by the potato bugs. Student parsnips were nice but small. Of tomatoes, the Tilden was much the best; Feejee, very late and much wrinkled. French Breakfast radish, very tender and nice, but soon became pithy. Peas were all planted May 6th; the earliest were Carter's First Crop, five days earlier than the Philadelphia Extra; the Eugenia were the best flavored, and the Peabody the poorest eating; the Advancer—all the crop can be picked at the same time—very fine flavored; the Surprise and Leviathan yielded heavy crops of very large peas. The past season has been very favorable for peas; I never saw them yield heavier nor last longer. The turnips were sowed in a carefully prepared piece of new ground, and came up finely, but were all eaten by the turnip fly.

Marion County, Iowa.—The nine pounds of Arnautka wheat received was sown on the 10th day of April, on newly turned sod ground, threshed out one hundred and sixty pounds of No. 1 wheat, weighing sixty pounds per bushel. On account of our extreme wet season, the barley and oats were a failure. The garden seeds were good, especially the Early tomatoes; the Dwarf Blood beet, Scarlet carrot, Yellow Danvers onion, Premium Dutch cabbage, and Winter Drumhead cabbage, all yielded largely.

Esmeralda County, Nev.—The Probstier barley produced one hundred. The product is better than the seed planted; both are two-rowed and superior to any variety of barley here. The White Schonen oats and the Black Swedish oats are both superior to any oats we have had here, by three fold. The White oats are rather the best, with a large, strong straw, not liable to fall down or lodge. The Cream-colored beans are of superior quality, ripening much earlier than any other variety here; the yield is very large and they are considered a valuable acquisition.

Los Angeles County, Cal.—Planted Crosby's New Sweet corn, April 10; it was well filled out in eight weeks and ready for use—a fine variety, exceedingly early and very sweet. Newcomb's Sugar corn, planted same time, matured about two weeks later, very large well-filled ears—an excellent variety. Carter's Warden Orange Globe Mangel-wurzel beet, and Demar's Fine Dark beet, planted at the same time, have made rapid growth; many of them now measure eight inches in diameter, and they are still growing. Student's parsnip, and Scarlet carrot, have each made a vigorous growth, and appear to be excellent varieties. Phinney's Early watermelon has done remarkably well, attaining a large size, and being of most delicious flavor; in fact, I may say I have found none to equal it, even here, where the melon

grows to perfection, and where the varieties are very numerous. All other seeds came too late in the season for a fair test.

Riley County, Kansas.—Saxonian barley, sowed in drills, thirteen inches apart, March 29, putting the grains about one and a half inches apart in the drill. When it came up and commenced stooling I found that I had at least twice too much seed for the ground. I never saw anything stool so much, nor grow so well, till it commenced filling; then it lodged badly, and I despaired of saving any at all; however, I got about a peck, and shall give it another trial next season. I think barley is going to be one of the best paying crops, and believe the Saxonian will do well with us.

Tripoli onion, sowed March 27, in drills, sixteen inches apart, grew very large, several measuring fifteen inches in circumference when pulled; not superior to Yellow Danvers in quality, but they grew somewhat larger. Vilmorin's Sugar beet, sowed April 21 and May 12. Good size, rather rough, but of excellent flavor. Dwarf White celery did not grow at all. Early White Flat Dutch turnip grew to good size, but very strong. Madeira lettuce, very fine and tender. Drumhead Savory cabbage, sowed in seed bed, April 5; medium size and fair quality, but not superior to Improved American Savoy, nor near so profitable as the Marblehead Mammoth Drumhead. Schweinfurt Quintal cabbage is an excellent variety; the heads were very large and tender, some of them weighing twenty pounds. Valentine beans, sowed May 6, did well and proved to be a very fine variety. Long Green okra, very tender when young. Dwarf Deep Blood beet, very difficult to grow, being tender, of slow growth; few grew large enough for the table, and were stringy; a few seeds of another kind grew in the bed, some of the heads from which weighed fourteen pounds. Student parsnip, very large, and of good quality. James's Scarlet carrot, large and of excellent quality.

Osage County, Kansas.—The Tappahannock wheat was frozen out by severe wet winter. Probstier and White Saxonian barley, together with Black Swedish, and White Schonen oats, all did remarkably well, but were mostly all rotted by constant rains before harvest. The Arnautka wheat came too late for a fair trial. It grew and headed out splendidly, but nearly all blighted.

The Large Madeira, Weathersfield, Yellow Danvers, and Tripoli onions, did wonderfully, some of the specimens weighing nineteen ounces each, and measuring fourteen and three-fourths inches in circumference; but they seemed disposed to grow and not keep well. The White Lisbon and Early Nocera grew small and separated into cloves like garlic. The English Dwarf beet proved entirely worthless, as did also the Flat Dutch turnip, while I raised on the same ground from other seed, variety not known to me, turnips weighing from four to five pounds each. Carter's First Crop peas were very fine. The Mammoth Sweet corn did well, while the Asylum, Brill's Extra Early, and Stowell's Evergreen did only middling. The Drumhead Savoy cabbage was an entire failure. The Quintal and York cabbage did well; also the Purple Kohl-Rabbi. The Large White lettuce is far inferior to the White Cabbage lettuce.

Dixon County, Neb.—The Arnautka spring wheat did remarkably well in this neighborhood, turning out at the rate of thirty bushels to the acre. The grain is considerably larger than the other varieties, and ripens from four to six days earlier, even when sown later. Its introduction into this county will be attended with good and profitable results. The fall wheat mostly froze out, owing principally to late sowing.

FRUITS IN IOWA.

Knoxville, Marion County, Iowa.—Many of our fruits were injured by the wet season; but it brought with it its lessons, for while some varieties of apples, for instance, were utterly worthless, a few kinds were never finer. Red Juneating, White Winter Pearmain, White Bellflower, Rome Beauty, and Fall Wine, were so scabby as to be almost worthless; while Williams's Favorite, Cole's Quince, Red Astrachan, Monmouth Pippin, Roman Stem, Winesap, Talman Sweet, Jonathan, Mother and Miller apples, were never finer; thus plainly indicating the different effects of extremely wet weather upon different varieties of this fruit.

Upon grapes, the deleterious influences of the excessive rains were still more apparent and fatal. Out of about seventy-five varieties of grapes which fruited with me the past season, not more than eight or nine varieties escaped uninjured, (and even those kinds not affected otherwise injuriously, were from ten days to two weeks later than usual in ripening,) while eight-tenths of the remainder were a total failure, by reason of the leaf-blight, mildew, and scab. Those not affected with any disease, or in the least injured, except as above stated, were Christine, (the best early grape I have,) Rogers Hybrids, Nos. 1, 13, (as I obtained it,) 34, 39, 41, 43, and 44, Union Village, and Isabella. These kinds fruited this year. Then I had a few kinds which have not yet fruited in my grounds, the vines and leaves of which are entirely healthy. These were Martha, Salem, Ives, Florence, Una, and Cottage.

While I shall remember the experience of the season, I would by no means discard all grapes which failed or were seriously injured this year. Many such have never previously shown any signs of disease. Among these were Concord, (partial failure,) Hartford, (total,) Delaware, (total,) Diana, (total,) Rogers Hybrids, Nos. 3, 4, 9, 19, 37, and 42, and many others, more or less injured, which I would still retain in my list.

Pears did better with me than usual. I had no blight and a very fair crop, all on quince stock. I commenced a year ago, and am experimenting quite extensively with pears on various stocks, such as *Lorbus*, (Mountain Ash.) Among those on which many kinds of the pear seem to grow very freely are *Aucuperia* Americana and *Quercifolia*. I am also using different varieties of the *Crataegus* (thorn,) and the *Lorbus*, *do. Mestica*, (service or June berry.)

FRUITS IN UTAH.

St. George, Utah.—The present year has been very unpropitious for grapes, and we have had only about one-half the quantity anticipated, though more than the crop of last year. Many have been injured by the spittle-bug, the mildew, and the myraids of small white flies which have appeared, sucking from the leaf the nourishment belonging to the fruit. Another reason was the failure of our usual July showers that wash and moisten the leaves. The White Chasselas in my garden was ripe the first week in July; and the Old Mission, the Isabella, and other varieties, are still abundant in some vineyards. Of the hundred varieties of foreign grapes we have imported and have growing, the White Muscat of Alexandria, the Bowood Muscat, and the White Malaga seem almost identical; the fruit is large, sweet, pulpy, and luscious, and when properly ripened and cured, make a large and most excellent raisin, and, so far as we can judge, are superior to any we have tested for raisins. For wine, we have fruited none superior to the Mus-

cat Hamburg, the Black Hamburg, and the Old Mission, (Los Angeles.) The Isabella is much grown here, and makes a rough keeping wine superior to that produced from it in its own climate and soil. After fruiting and making many experiments with American grapes, I feel fully warranted in saying that we need none here but the finest and best of foreign grapes.

Apples, peaches, plums, figs, and especially pears, have done splendidly, giving altogether a long fruit season. We had ripe peaches in June. The pomegranate is really a lovely fruit to look upon, and not bad to eat. They have been quite common this season, and may still be seen the highest adornment of the garden. The raspberry, the gooseberry, and the strawberry do well here, but the blackberry and the currant seem to require cooler climate. Sweet potatoes have been very prolific and of large size this year; and the experiments with Chinese upland rice and the peanut have been satisfactory and very encouraging. The Tappahannock wheat is in high favor as an early-ripening variety, and one requiring the least water.

MELONS AND FRUITS IN CALIFORNIA.

A correspondent, writing from Chico, California, in reporting his success with seeds sent from this Department, states that "several varieties of the cantaloup seed produced melons which the world cannot surpass, the 'Japan White cantaloupe,' the 'Cassaba cantaloupe,' and the Phinney's Early watermelon, being particularly fine. The 'Cassaba' (imported from Smyrna) produced the finest melons ever grown on this continent, being as far superior to the choice Hunter melon as the latter is to the common muskmelon. The whole appropriation made by Congress for your Department is repaid by the introduction of this one excellent variety of melon." In reference to the shipping of California fruits to eastern markets, he adds:

Without a railroad our choicest fruits command one and a half to three cents per pound, while with a railroad we could obtain six to twelve cents per pound. The railroad will soon be completed to Chico. Shipping fruit East has been a failure thus far. This result is owing entirely to want of knowledge on the subject. Most of the fruit shipped has been picked while *green*, and being poorly packed, has been lost before it reached the eastern markets. There can be no question that our apricots, cherries, pomegranates, pears, and grapes can be laid in New York in good condition and command high prices, but the science of picking and packing must first be understood.

FRUIT SHIPMENTS FROM VINELAND, NEW JERSEY.

Vineland, N. J.—The following, obtained from the railroad shipping books, shows the amounts of the shipments of the principal products of Vineland during the past season:

Strawberries, quarts	209,844
Raspberries, quarts	39,622
Blackberries, quarts	32,353
Peaches, packages	7,904
Melons, pounds	629,470
Grapes, pounds	254,203
Sweet potatoes, barrels	5,678

SURPLUS PRODUCTS OF IOWA.

Dr. J. M. Shaffer, secretary of State Agricultural Society of Iowa, furnishes the following statement of surplus agricultural products shipped from that State by the several railroads (not including ship-

ments eastward from McGregor and Dubuque) during the year ending April 30, 1869:

Wheat, bushels	9,296,648
Corn, bushels	2,210,603
Other grains, pounds	35,476,854
Other grains, bushels	1,808,047
Other agricultural products, pounds	27,608,767
Flour and other agricultural products, pounds	324,753
Wool, pounds	2,866,196
Horses	1,628
Cattle	80,287
Hogs	412,357
Sheep	52,733
Dressed hogs, pounds	13,418,776
Lard and pork, pounds	7,582,579
Animal products not otherwise specified, pounds	10,983,101

"Other agricultural products" include flour, potatoes, and beans; and "Animal products not otherwise specified" include eggs, butter, tallow, and hides.

CROPS IN HOLT COUNTY, MISSOURI.

Holt County, Mo.—The present year, despite the ravages of the grasshoppers in the spring and early part of the summer, and the extraordinary fall of rain, has been one of unusual prosperity to this county. Many new citizens have been added to the population, towns have sprung up, as if by magic, and thousands of acres of land have been fenced, and brought into cultivation. The staple products of the county have increased in many instances more than one hundred per cent. Fully 1,000,000 bushels of good corn have been produced, the average price of which will not be less than forty cents per bushel. The product of wheat, rye, oats and barley, although injured to some extent by grasshoppers, will not fall short of 200,000 bushels. The crop of apples for the year is estimated to exceed 50,000 bushels. Fifteen years ago, the product was less than 2,500 bushels—very little more than is now produced by the town of Oregon alone. The number of bushels of pears will exceed 2,000, the average price of which will be at least $3 50 per bushel. Of other fruits, including grapes, cherries, plums, &c., our farmers and gardeners have produced large quantities of the very best quality. The clip of wool is estimated to reach 30,000 pounds annually, a considerable portion of which is manufactured in the county. At the close of the season, not less than 30,000 head of hogs will have been marketed, netting an average per head of at least $16, making an aggregate of $480,000. Add to this the cattle, sheep, mules and other stock sold during the year, and we have a total of sales of live stock for the year 1869, largely exceeding a half million dollars. To this may be added the surplus fruit, grain, fire-wood, saw-logs, &c., and we find that our sales for the year are more than a million dollars.

CROPS IN HANCOCK COUNTY, ILLINOIS.

Hancock County, Ill.—Hancock County had returned on the assessment rolls for the year 1869:

Wheat in cultivation, 38,662 acres; corn, 99,242 acres; other products, 45,548 acres. Total, 183,452 acres. Wheat, estimating fifteen bushels

average, 579,930 bushels; corn, estimating eighteen bushels per acre, 1,786,356 bushels. In respect to corn, the great staple product, if we take half the acreage returned for 1869, to wit, 49,621 acres, at thirty bushels per acre, we have for total yield 1,488,630 bushels, which will be as near an approximation to the actual product as can be estimated. Many hundreds of acres of corn are not worth cutting up for the fodder.

TOBACCO CROP IN INDIANA.

Evansville, Ind.—The largest crop of tobacco, and perhaps the best ever sent to market here, will be shipped to this point this season. The crop sent last year was about 12,000 hogsheads, of which 3,856 were sold here at public sale at good prices. The shipments to be made this season will increase the amount fully one-half, as estimated by the dealers, and with the additional ground used in planting, within fifty miles of this place, which is the best section in the West for tobacco, the crop is annually increasing. The tobacco shipped here is principally from the Green River, the Tennessee, and the Cumberland.

IMPROVEMENT OF STOCK IN KANSAS.

Riley County, Kansas.—Our farmers have just commenced to pay some attention to improving their stock. Last fall I purchased a thorough-bred short-horn bull calf, which is so much larger and finer for his age than our natives that my neighbors can see it, and don't propose to be behind in good stock. Four of my nearest neighbors have just sent for one each, of full-blooded Durhams. Some sent to Chester County, Pennsylvania, and others to Illinois. There is nothing that needs improving more than our native cattle.

DISEASES AMONG STOCK.

Knox County, Tenn.—Hog cholera, that fatal malady, still prevails. I cured one bad case by giving calomel, forty grains, and afterward magnesia. Mine were bound up in the bowels without any operation; this is very common. The hog pants as with summer heat, lingers two to four days, turning almost purple as to color of the skin, and dies. No disease among other stock. Chickens are nearly all dying with what is called cholera.

Cherokee County, N. C.—A disease known as black tongue prevails among cattle and deer in this county. Few cattle have died in proportion to the number of cases; but it appears to be fatal to the deer—they are found dead in the woods and on the plantations. When attacked they seem to make for the farms.

Greene County, N. C.—Hog cholera is prevalent in this county. One farmer has lost one-half his stock; several others have lost one-third or one-fourth their number. No remedy.

Union County, S. C.—Hogs are still dying from some disease, probably cholera. I have used a little tar, sulphur, and copperas, and have lost none. A neighbor in an infected district has been giving a little arsenic once a week to some young hogs, and they keep well and thrifty.

DeKalb County, Ill.—In many parts of the county hogs are diseased and dying. The lungs after death have a dark appearance; in some instances traces of inflammatory action are manifest. The first indication of disease is wheezing and apparent difficulty in breathing.

STOCK IN BOONE COUNTY, ILLINOIS.

Boone County, Ill.—The assessor's returns for 1869 for this county report 6,465 horses, 98 mules, 14,882 cattle, 5,679 hogs, and 24,008 sheep; showing an increase over the preceding year of 372 horses, and 2,091 cattle, and a decrease of 2 mules, 1,512 hogs, and 4,093 sheep. Fine-wooled sheep are decreasing, and middle and coarse wools are increasing.

ADVANCE ON LANDS IN ALABAMA.

Greene County, Ala.—Lands have risen fifty per cent. in this section within the past six months, owing to projected railroads. Our cotton planters are rapidly becoming solvent, and the general prospect is encouraging. Northern emigration is desired, and every facility will be extended to settlers. Lands are cheap, good crops may be made, and high prices realized for products.

THE SOUTHERN FAIRS.

In most of the southern States agricultural organizations have held exhibitions this year, for the first time since 1860. At those of Virginia, North Carolina, and Georgia, the Department of Agriculture was represented. Aid in organizing these useful associations, and in stimulating agricultural inquiry and improvement, has been cheerfully and zealously accorded, and their first public exhibitions were deemed worthy of special notice, not only as an indication of official interest in the work, but as a means of learning the actual status of practical agriculture in that section, and of understanding more fully its immediate wants and unrealized capabilities.

These exhibitions were interesting, not so much for the intrinsic excellence of the products and animals exhibited, or for the extent and variety of the entries, as for the indication that a new era is dawning, that many of the old things of agriculture are passing away, and that all things industrial must be undertaken with new energy and a progressive spirit. These fairs gave evidence of an awakening activity in mechanical invention, of a coming popular conviction of the importance of improvement in farm stock, and of the necessity for a wider range of production, superior culture, richer soil, and a higher order of farming generally. It is true that this conviction is by no means general; and it is certain that enlightened views must obtain slowly and encounter many rebuffs, as they have heretofore, and do now, in other sections of the country. It must be admitted that lack of knowledge, want of system, and the existence of narrow views and prejudices, are serious hindrances among the masses of farmers of our whole country, to true and rapid progress of agricultural and national development.

The Virginia exhibition, at which this department was represented by the Commissioner, the superintendent of gardens and grounds, and the chemist, was more complete in matter and management than the others; its entries of improved stock and agricultural implements attested a growing tendency to appreciate and improve the rare pastoral capabilities of Virginia, and to initiate a more rational sytem of culture; its show of minerals prognosticated the wealth of mining and manufac-

turing which will at some time enrich the State; and its fruits, cereals, and garden products, illustrated the wide range of soil and climate between the sands of the eastern coast and the peaks of the Alleghanies.

The North Carolina fair was attended by the superintendent of the garden and the statistician. Unpropitious weather greatly interfered with its success, yet a creditable effort was made; an interest was awakened in competition, not merely for the distinction or advantage of an award, but as a contribution to the general good; a decided tendency toward the improvement and the enlarged use of agricultural machinery was evinced; and a determination was manifested to make the "Old North State," which produces naturally all forms of vegetation, from the semi-tropical to the Alpine, a storehouse of nearly all the productions natural to any portion of North America. The meetings of the State society were replete with zeal, interest, and activity, and its reports, essays, and transactions should be made a matter of public record and distribution.

The Georgia exhibition was remarkable for the number and character of its visitors, and for the extent of country and variety of interests which they represented. Its material characteristics were in some sense similar to those of the fairs above mentioned, with a larger variety of contributions from other States, and an indication of a more decided and absorbing centralization of cotton-growing. Interest in this important culture is natural and proper, but the comparative neglect of other industries of the farm is greatly to be deprecated, as prejudicial to the true interests of agriculture and *to the ultimate success of cotton-growing itself.*

The following address, delivered by the Commissioner of Agriculture, during the Georgia exhibition, presents the salient points to be considered in the present status of agricultural reconstruction, under the free labor system and the diversification of industry which is not only permitted but absolutely impelled by the destruction of the former system and the natural capabilities of this section:

It is with pleasure that I have responded to your kind invitation, which I have accepted in the spirit in which it was tendered—a spirit of mutual concession, sympathy, and encouragement. This pleasure is enhanced by a knowledge of the great resources of your State—a soil rich in all the elements of fertility, and suited in its variety to the entire circle of the productions of the farm, orchard, and garden; phosphates and marls, in many localities, to repair the waste of continued cropping, and minerals useful in the arts; water power enough to manufacture all the cotton grown in the State, and the implements of agriculture and of other industries; and a climate in which the cereals and fruits of temperate zones may flourish side by side with semi-tropical forms of vegetation, and in which man may exercise, in highest health and vigor, all his mental and physical energies in subduing nature, enlarging production, increasing wealth, and enhancing human happiness.

With such resources at your command, with active invention to plan, and an indomitable will to work, who can set a limit to the career of activity and enterprise upon which you have entered? I have come among you with some knowledge of these natural advantages, and with a full appreciation of the laudable ambition that impels you, to speak a word of encouragement, to present the allurements of new hopes and new aims, and ask that, extirpating ancient prejudices, forgetting the things which are behind, you press forward to those which are before, aiming to advance the united interest and brighten the consolidated glory of a great and growing nation.

The change in your labor system involves a radical change in the manner and appliances of cultivation, a necessity which many of you fully realize and thoroughly understand. Free labor, to be most efficient, must be educated labor—in a certain degree, skilled labor; it must be supported and supplemented by improved machinery, so that every dollar expended in the exercise of human muscles may become *two* by the magical augmentation of rural mechanism. It is thus that our lands must be cultivated and crops grown, in part by *brawn*, in part by *brains.*

This change in labor also involves the necessity for smaller farms, better culture, the use of manures, rotation in crops, and a larger *working capital* in proportion to permanent investments.

Broad acres of impoverished soil, without abundant means for needed fertilizers and fixtures, machinery, and farm animals are not only non-productive, but absolute sources of cost and discouragement—a mill-stone upon the neck of enterprise. Without a working capital at least equal to that invested in land, recuperation must be tedious, and the profits of farming small; with its aid in utilizing the labor at command, that which is more efficient and intelligent will naturally flow in.

The result will be a rapid development, a higher condition of fertility, larger crops, valuable and creditable improvements, good neighborhood, roads, larger profits, wealth, comfort, and contentment.

As a natural sequence to this system of industry, variety in production will take the place of an unceasing culture of cotton and corn. The broad capabilities of soil and climate will have free scope and exercise, and while the product of cotton will be greater than now, there will be corn enough for man and beast, an abundance of beef, pork, and mutton, the finest of vegetables, and rarest of fruits, not alone for home consumption, but for the supply of less favored regions. Sugar, in favoring soils, may take the place of cotton as an export crop: sorghum may yield its sweets for local use of dwellers among the hills; a multitude of new and profitable crops may swell by millions the grand aggregate of the cash receipts of agricultural labor. Ramie, introduced, in 1855, in the Botanic Garden at Washington, and propagated for years in the experimental garden of the Department of Agriculture, promises to vie with cotton in profit and usefulness, if the manufacturers succeed in improving and cheapening its fabrication, and thus create a great and permanent market for the new fiber, which can be produced in unlimited quantities at reasonable rates.

You have also an immeasurable source of wealth in the cultivation of fruits. Even that most valuable of all domestic fruits, the apple, can be produced here in the highest perfection. It is true that failures have resulted from introducing varieties of northern origin, but your pomologists have collected native varieties fully equal in flavor and keeping qualities to the best of those from any other section.

Merely mentioning the pear and the peach—the latter especially revelling in your bright and lengthened summers—allow me to direct your attention to the fig and grape. The former of these probably requires less skill in propagation and care in culture, or in drying or other preparation for market, than any other fruit of value.

The grape, more capricious as to climate and locality, can here enjoy its favorite region. On your hill-sides the best table and wine grapes of the northern States will attain perfection, and it is prophesied that only on the elevated lands and mountain slopes of the southern States will the region be found that is to yield wines equal to a Johannisberger, a Tokay, or a Margeaux; while in your lower lands you have the famous Scuppernong, that even now is highly esteemed, both here and in foreign countries. Vast developments await you in this direction; and when you reflect that even on your worn-out land, unfit for corn or cotton, fruits and vines may be produced in the greatest abundance and perfection, the propriety of giving attention to these crops will become apparent.

Nor will this measure of diversity suffice. Manufacturers must occupy the sites of water-powers, and the surplus forest products be used in propelling machinery by steam, thus beautifying your State and enriching your people, not only by the products and profits of this industry, but by the stimulus it will afford to agriculture in the consumption of its products and the enhancement of their values. I hope to see the day when, with the help of manufactures in other States of this country, we may be able to manufacture every pound of cotton that we can produce. You may in self-defense be compelled to do it, as Great Britain is already preparing to colonize India with the skilled laborers of Lancashire, as teachers and directors of the teeming millions whose services may be had for a remuneration scarcely appreciable. Ship abroad among the nations of the earth, at little cost for freights and commissions, all your cotton in yarns and fabrics, bearing the added value of much cunning labor, ready for the markets of the world, rather than depend upon the wants or the caprices of other nations for the sale of the raw material.

The small beginning of five and a half millions of pounds of cotton manufactured in this country in 1791, increasing to fifty millions in 1821, has augmented to four hundred and fifty millions in 1863—one million bales of four hundred and fifty pounds each—a consumption greater than that attained in 1860. It will continue to increase, and, with its swelling volume, change the whole current of trade, advancing our national wealth and prosperity.

We must not ignore the efforts of the British cotton commission to attain independence of foreign markets through their Indian empire. It is true that the fiber known as "Surats" sells at lower rates than our uplands, but it should be remembered that it is owing more to careless handling than to any defect in the staple itself, and that strenuous and systematic efforts are producing a cleaner and better fiber. If the "Dhers," with their clumsy machinery, have produced from this cotton—with careful manipulation of the fiber from the beginning—the finest thread known, measuring one hundred and fifty miles to the pound, and running to No. 200 in fineness, may not the teachings

and practice of skilled English laborers in India yet incite a sharper competition than we have heretofore encountered? Portions of India possess some of the most productive soils of the world, peculiarly adapted to the growth of cotton. Their production is indicated by the following statement. The annual consumption for the whole of Europe at present is about 3,800,000 bales—it has been greater—of which

	Bales.
America sends about	1,500,000
India sends about	1,400,000
Egypt sends about	250,000
Brazil sends about	500,000
Other countries send about	350,000
	4,000,000

as reported by the Indian commissioner. Yet I do not believe we are to lose the first rank as a cotton producing nation. Our opportunity lies in a better and more perfect cultivation of the soil, its thorough aeration, draining in heavy lands, and liberal manuring; a more complete adaptation of the implements of its culture to their peculiar work, the invention of labor-saving expedients and processes, and the reduction to a minimum of the costly use of human muscles; a regular rotation system of cropping, by which the soil may be constantly improving rather than continually "wearing out;" and finally, a proper manipulation of the fiber for market, by which uniformity of length, freedom from foreign admixture, and perfect cleanliness, may be secured. These are the points in which India cotton is deficient, and in which ours must continue to excel.

To secure a longer, finer, and evener staple is entirely practicable. It, however, can only be accomplished by observing the great laws of reproduction on which all improvement in animal and vegetable species is founded. The key to this progress exists in a single word—"pedigree."

Select a plant producing abundantly a superior fiber; plant its seed in a genial and well-cultivated soil; select again and again from its progeny the finest and the best, discarding all else, and few years will elapse ere marked results will prove the great utility and exceeding profit of the effort. In this connection I present the suggestion of an experimental farm, established by your State government, and conducted by an experienced and intelligent planter, where new varieties of cotton may be produced and foreign varieties tested. I would also commend to each individual planter the necessity of a constant regard to this principle of selection in the planting of every crop he may attempt to cultivate.

I desire also to call your attention to the importance of a system of co-operation among planters for the destruction of the cotton caterpillar when it first makes its appearance, either as a caterpillar or in its perfect state. While their numbers are few, any expense necessary for their extirpation would be a profitable outlay; when they swarm by millions in every field their presence is disheartening, and their destruction impossible.

Let these considerations be regarded, with intelligent labor and a personal supervision by the observant planter, and you may defy the competition of the world, produce a fiber unsurpassed, and realize a profit ample for any want and satisfying every requirement of luxury.

In such views of progress I personally feel a deep and untiring interest. To assist in forwarding them you may command my constant endeavors as Commissioner of Agriculture, and co-operation and aid so far as the limited means at command may permit. The magnitude of the interests involved, and the effective manner in which the Department may advance them, lead me to believe that larger appropriations by Congress will hereafter permit wider and deeper usefulness, and that while hundreds of millions are given to railroads, a mere moiety at least may be accorded to advance the progress of agriculture. This Department now consists of divisions of statistics, agricultural chemistry, botany, (to which is attached an herbarium,) natural history, and practical horticulture.

The first is the office of publication, from which are issued the annual report of nearly a quarter of a million of volumes, and a monthly report of 25,000 copies, embodying official data from thousands of correspondents and nearly every county in the Union.

In connection with a museum of natural history, as allied to agriculture, is an economic collection exhibiting the processes of manufacture of the raw products of agricultural industry, in which the textile arts, the making of sugars and dyes, and the utilization and extension of the primitive products of the earth are illustrated and described.

The experimental garden, to which has lately been added an arboretum, is a theater of active and intelligent effort, including the test and propagation of exotic fruits for

your own favored section, and the introduction of new and promising plants suited to every climate.

The chemical section of the Department is occupied with the examination of the natural sources of agricultural wealth in mineral deposits. The knowledge of the composition and food of plants is being increased by scientific investigation. A series of analysis of cereal grains is contemplated for the purpose of determining the amount of influence which the latitude, soil, and climate of different localities exert upon the growth of our food plants. A collection of specimens representing our agricultural and economic geology and mineralogy will afford a valuable display of the rock strata of the whole country, and serve to complete the efficiency of this division.

The library of the Department, though not extensive, is receiving large additions by purchase and exchange with numerous scientific and agricultural societies in Europe, Asia, Africa, and even the islands of the Pacific.

A system of exchange of seeds and plants is in operation, embracing societies, industrial colleges, and botanical gardens throughout the world. An extensive correspondence is conducted, embracing nearly the entire country, and the whole range of practical agriculture. All these parts of our organization are working harmoniously, and I hope in some degree effectively, and all are laboring for the advancement by equal steps of every section and every rural interest in our broad land; and in the coming general prosperity and universal progress I hope and pray your favored State may have its full and generous share.

RAMIE.

Messrs. Wade & Son, manufacturers, of Bradford, England, who forwarded the specimens of manufactured China grass to the museum of this department in 1865, write as follows relative to the status of the manufacture:

We have pleasure in acknowledging the receipt of your communication of the 25th August, and shall be glad to give you any information now, or at any time, on the question of ramie or China grass.

1st. The machinery employed in manufacturing China grass has been greatly improved during the last few years, but owing to the limited supply of raw material the manufacture of this fiber has not yet been very much extended.

2d. Respecting the prospect for future demand, it is our opinion that, with a large and regular supply of raw material at a moderate price, say about £45 to £50 per ton in Liverpool, this article would in the course of time be a staple fiber in English manufacturing, taking to some extent the place of cotton, wool, or silk (with both the latter articles, we may say, it can often be advantageously mixed.)

3d. The amount of grass imported into this country varies considerably. During the last twelve months little has come forward, and the market is entirely cleared; there is now a demand for it at £70 per ton, but no great quantity could be consumed at this price. During the past year we have had many inquiries from the United States (some of them of a very enthusiastic nature) regarding ramie, &c., to all of which we have replied by sending samples and giving the best *bona-fide* information in our power.

We may say that we consider your planters are injuring their interests by the manner in which they are getting up fiber. It is well known that China grass when cut and dried has an outer bark on it, which the Chinese remove by hand; now, as this would be impossible in the States, it must be taken off by machinery, and in this state exported to England.

The next process, probably the most important in the manufacture, that of discharging the gum, is one that has taken a great many years to develop, the manner in which it is done making the grass either valuable or almost worthless. The object to be kept in view in discharging, is to retain the strength, elasticity, color, and luster of the grass, and the samples of ramie we have had sent from the States are all spoiled in discharging, being made tender, many of them almost rotten, a bad color, and entirely without luster; therefore we see no success in the exportation of ramie but in the rough state with simply the bark taken from it.

We are preparing, as requested, a small case of samples which will be ready in about six weeks, and shall be forwarded without delay.

C. F. Dennet, of Boulogne, France, writes concerning a new process for separating gum and gluten from the fiber, and for bleaching it without danger or injury from chemicals. He also says there is a new ma-

chine for spinning and twisting threads and yarns, of which the spindles are worked by conical friction, instead of bands and drums, running with small power and great speed, and twisting a uniform and perfect thread. He reports the scarcity of ramie fiber, referring to one mill fitted up expressly for the purpose of working China grass, which is unemployed for want of material, and gives the opinion of a lace manufacturer, that if ramie can be treated to retain its strength, softness, purity, and brilliancy of color, it will find a ready sale.

The *Petite Presse* of Paris, under date of July 31, of the present year, thus presents the history and utilization of *L'ortie de la Chine*, or white nettle of China:

In the Su Chuen there is a great commerce made in cloth called *hia-pon*, which is made from several varieties of nettle, but principally from *Urtica nivia*, a white nettle; this herbaceous plant, which flourishes in a damp soil, resembles greatly our hemp, and gives a brilliant whiteness, and is of great strength; they use it to make summer clothes, bed curtains, handkerchiefs, sacks for grain and ropes. There is no textile material in existence to be compared with the white nettle (*L'ortie blanche*) or China grass, as the Americans call it, for the fineness and firmness of its fibers and their strength. It has been imported into France, where it has become perfectly acclimatized through the pains taken by Father Voisin, missionary of China, who was the first to understand its importance, which is so great that the Society of Acclimatization gives a prize for these fibers. Those who occupy themselves with this matter have only to take the Chinese for models to know how to draw from the nettle tissues as fine as cambric. But the Chinese have nothing to teach as to twisting; they have remained stationary, and are still pursuing the same old system, perhaps dating from the dynasty Tchang or Tcheon.

The seeds are small and easily transplanted. The method of preparing this plant is very simple. As soon as it is cut down, it is passed through a crusher, to separate the fibers and pulverize a portion of the gummy matter, after which it is soaked in water to purge it from the residue of gum; then repassed into the crusher, and finally plunged into a bleaching bath, when, once a day, it is sent to the manufactory. Now that the utility of the plant is proved, why not introduce it into California, where the other varieties of orties grow abundantly in a wild state? The farmers exhaust their soil in growing one kind of grain, when they might give the soil rest by producing other products, which would prove more profitable. Cultivation of the nettle would bring them a certain return more uniform and advantageous, because they would gather three crops each season, and the influences of weather would not affect it. Acclimation of this plant would prove a new branch of industry in California.

Absurd statements, by interested and ignorant parties, touching the botany and practical value of this plant, are publicly made, and the public mind has been greatly mystified. As to the demand for the fiber, all depends upon its condition. It must be very small for worthless samples manipulated by some of the machines and processes employed. It may be very large if the fiber can be easily and perfectly separated from the wood and its own bark, at slight expense. The business of *propagating* plants has been very lucrative, but no one is known to have made a fortune by producing the fiber, nor will such a case be reported until inventive genius and mechanical or chemical skill has perfected its proper and *cheap* preparation. It would be well to extend its *culture* slowly, till this result is more nearly attained than at present. The Department of Agriculture has investigated this subject carefully, has disseminated seeds and plants, and encouraged the experiment of its culture, and would stimulate invention and effort to a successful issue, and at the same time shield the unsuspecting from losses through the greed of gain.

STATISTICS OF THE COTTON MANUFACTURE.

At the annual meeting of the Cotton Manufacturers' Association, held in New York, June 30, 1869, the Statistical Report embraced returns from seven hundred and ninety-four cotton-mills, having over ninety-nine per cent. of all the spinning machinery in the country. The details and results of the statistics thus obtained appear in the published proceedings of that meeting. We here repeat the statement then made of the home consumption of cotton, North and South, for the year 1867–'68, and have, for the greater facility of comparison, changed the quantities from pounds to bales of four hundred and sixty-six pounds each, that being the actual average, as shown by the table of weights appended to this report:

Consumption of cotton for the year ending August 31, 1868.

	Mills.	Spindles.	Bales of cotton used for spinning.
NORTHERN MILLS.			
Mills returned	693	6, 452, 974	855, 007
Mills estimated	43	50, 000	6, 833
	736	6, 502, 974	861, 840
SOUTHERN MILLS.			
Mills returned	101	247, 583	76, 955
Mills estimated	7	13, 000	4, 430
	108	260. 583	81, 385
USED IN MILLS OTHERWISE THAN FOR SPINNING.			
Quantity returned			24, 165
Quantity estimated			30, 043
Total	844	6, 763, 557	54, 208
Aggregate			997, 433
Deduct for exceptional cases in which the quantity reported was the consuming capacity, and not the actual consumption			31, 767
Actual home consumption, North and South, 1867–'68			965, 666

Synopsis of new returns to October 1, 1869.

State.	Mills.	Spindles.	Yarn.	Cotton spun.	Average per spindle.	Otherwise used.
Maine	19	490, 424	23¾	25, 090, 047	51. 20	.....
New Hampshire	43	745, 930	26	39, 394, 541	52. 81	680, 431
Vermont	11	22, 168	30½	1, 071, 867	48. 73	112, 534
Massachusetts	143	2, 366, 025	28⅞	124, 298, 128	52. 54	168, 674
Rhode Island	89	906, 681	33⅜	36, 593, 689	40. 39	375, 000
Connecticut	73	514, 549	30	25, 559, 591	49. 67	267, 820
New York	43	439, 911	32⅓	18, 791, 162	42. 71	749, 500
New Jersey	17	136, 002	36¼	5, 328, 718	39. 18	.....
Pennsylvania	50	271, 946	19	18, 725, 056	68. 85	457, 909
Delaware	7	35, 108	20⅞	1, 986, 886	56. 60	.....
Maryland	8	33, 802	12⅞	4, 994, 237	147. 75	.....
Ohio	3	13, 270	10¾	1, 648, 608	124. 24	100, 000
Indiana	1	10, 800	14	1, 447, 908	134. 07	.....
Illinois	2	460	27	27, 882	60. 61	126, 500
Missouri	3	12, 064	11½	1, 793, 644	148. 68	.....
North	512	5, 999, 140	28½	306, 751, 964	51. 13	3, 038, 368
Virginia	7	27, 148	14½	2, 263, 168	83. 80	.....
North Carolina	15	20, 743	12⅓	2, 486, 741	120. 13	.....
South Carolina	5	29, 084	12⅛	3, 582, 595	123. 54	.....
Georgia	26	73, 556	13¼	9, 909, 947	133. 92	.....
Alabama	8	27, 364	15½	2, 460, 738	89. 94	.....
Mississippi	3	3, 332	8⅜	242, 000	72. 63	.....
Texas	2	1, 716	9⅝	209, 300	121. 97	.....
Arkansas	1	516	10	95, 363	184. 81	.....
Tennessee	7	9, 800	11⅛	735, 071	75.	.....
Kentucky	2	4, 500	9	788, 795	175. 29	.....
South	76	197, 759	12¾	22, 773, 718	115. 02	.....

RECAPITULATION.

North	512	5, 999, 140	28½	306, 751, 964	51. 13	3, 038, 368
South	76	197, 759	12¾	22, 773, 718	115. 02	.....
Total	588	6, 196, 899	28	329, 525, 682	53. 17	3, 038, 368

The mills embraced in last year's report that have not now reported were generally of small capacity, having in the aggregate only 678,689 spindles.

The returns from five hundred and eighty-one mills last year and this year compare as follows:

	Pounds.
Five hundred and six northern mills, which for 1867–'68 reported 5,827,947 spindles, consuming	331,559,311
Report for 1868–'69, 5,977,684 spindles, consuming	305,484,085
Showing a falling off of 7.86 per cent., or	26,075,226
Seventy-five southern mills, which for 1867–'68 reported 195,921 spindles, consuming	27,390,108
Report for 1868–'69, 195,659 spindles, consuming	22,678,718
Showing a falling off of 17.20 per cent., or	4,711,390
Together, 581 mills, which in 1867–'68 reported 6,023,868 spindles, consuming	358,949,419
Report for 1868–'69, 6,173,343 spindles, consuming	328,162,803
Showing a falling off of 8.57 per cent., or	30,786,616

These 581 mills reported for 1867–'68, as cotton used otherwise than for spinning	4,705,600
And report for 1868–'69	2,761,876
Showing a falling off of 41.30 per cent., or	1,943,124

It is fair to assume that a ratio afforded by returns from ninety per cent. of the spindles reporting last year, and eighty-nine per cent. of all in the United States, taken as they come, will be a just and true ratio for the whole manufacturing power in the comparison of the last and the preceding years' work. It is therefore applied to all the mills reported and unreported in the following statement of the home consumption in the mills, North and South, for the year 1868–'69, reckoned as last year, in bales of 466 pounds each:

	Mills.	Spindles.	Bales used for spinning.
North	736	6,670,346	767,512
South	108	260,000	64,998
Used in mills, but not for spinning			31,744
Totals, (1868–'69)	844	6,930,346	864,254
Against, (1867–'68)	844	6,763,557	965,666
Showing a reduction in northern mills for spinning			65,448
Showing a reduction in southern mills for spinning			13,500
Showing a reduction in cotton otherwise used			22,464
Total			101,412

As the result of inquiries concerning the average weight of bales, it was found that in the returns from the northern mills a bale averaged $465\frac{3}{10}$ pounds; in invoices from southern markets, $466\frac{1}{2}$; in Liverpool, 465; in Boston invoices, $473\frac{1}{2}$. The following averages are obtained from local markets:

	Bales.	Average.	Pounds.
New Orleans and Texas	943,022	463	436,619,186
Mobile	230,726	497	114,670,822
Savannah	357,253	475	169,695,175
Memphis and vicinity	344,545	472	162,625,240
Charleston	198,943	440	87,534,920
Nashville, &c., (inland)	131,000	460	60,260,000
Virginia and North Carolina	65,420	425	27,803,500
Total	2,270,909	466.8	1,059,208,843

BEET-SUGAR MANUFACTURE.

Dr. G. W. Hulse, formerly a sugar planter in Louisiana, writes to the Department as follows in reference to the practicability of sugar production from the beet in Colorado:

Since my arrival in this Territory my attention has been attracted to the large, apparently sound, and perfect growth of the beet root of the country. Specimens of ten and fifteen pounds weight are no uncommon sight, and I have been told by reliable farmers that roots are occasionally found of even twenty pounds in weight. Both soil and climate seem well adapted to their perfection of growth, and in many localities they attain great size without irrigation, although this section of the Territory is already provided with irrigating ditches to a considerable extent. Many of the farmers say that the beet requires on the bottom lands little or no irrigation after being well started in growth.

Among those grown here I do not recognize any of the true white Silesian varieties nor any of those that are cultivated for sugar-making purposes in Europe. Still such as are grown here are generally very sweet and good flavored, when prepared in the ordinary way for table use. This induced me to make a trial to ascertain if any contained sugar equivalent to, and identical with, cane sugar, and from the short red turnip, (garden variety,) which I found very juicy, but exclusively loaded with coloring matter, I had no difficulty in obtaining true sugar, well-granulated rhomboidal crystals of good size and identical with cane sugar in every physical aspect, and I doubt not they would prove so under trial of the most perfect saccharometer.

With one hundred and twelve pounds of juice from a large white variety, (not the Silesian,) I obtained over twenty-five pounds heavy sirup, but did not succeed in obtaining good crystals, as the appliances for boiling the juice were ill-suited to the process of evaporation, and no lime was used (as none was at hand) for defecating or cleansing the juice.

Consider for one moment the advantages of such products for purposes of alcohol and potash, in addition to sugar products. The production of alcohol from the refuse of beet-sugar works, and from the inferior qualities of beet, would naturally interfere with the distillation of grain, as few could afford to cultivate grain for purposes of distillation in competition with beets.

The additional production of potash from the refuse of beet-sugar factories would be a new industry of great national importance. You are doubtless aware that there exist large establishments in France whose exclusive business is the product of alcohol and potash from the beet roots, and I have often wondered if much of our fine French brandy, as imported into this country, was not the product of the beet rather than of the grape.

Before our late unfortunate and desolating war I had long been engaged in cane culture and sugar making in the State of Louisiana, and had also improved opportunities of examining into the process of beet-sugar making as well as the processes of alcohol and potash making from beet roots in different places in Europe. I do not hesitate to say that I saw no place in France, Belgium, or Germany, where beet roots grew to such seeming perfection as they do in this Territory, nor do I know any portion of the United States (unless it be Oregon) where they will in any way compare with those found in Colorado.

When our soil is carefully examined in reference to its elementary constituents one is struck with the amount of its saline compounds, especially with its large amounts of potash and soda. Potash is the glory of beet-root food—where sugar is an organic compound or organic product, the result or phenomena of vital functions. A glance at those immense mountain barriers will explain the source of those inexhaustible supplies of potash and soda. Feldspathic (decomposing) rocks characterize much of the mountain upheaval on this side of the main range, consequently the waters incessantly descending from the sides are the grand transporting agents, heavily freighted with both of these substances, potash and soda, in some of their various forms, and perpetually renewing the supplies of food so congenial to the taste and growth of the beet root.

Farmers, as before remarked, have already done much in the way of constructing ditches for purposes of irrigation, and I believe no country on earth has advantages like this if a proper system of irrigation be adopted equal to its capabilities and requirements. The streams descending from the mountains of almost perpetual snow are numerous and may be conducted over a vast extent of rich upland soil. The expense of turning all the mountain streams from their natural beds and conducting them by ditches or canals over the main average hills of the plains will be a mere drop in the bucket compared to the expense of levees required for the protection of Louisiana and Mississippi. Vegetables, excellent in quality, will soon be so abundant that the supply will exceed the demand, and even wheat, though excellent in quality, will only bear transportation to an eastern market when railroads become more moderate in charges. But sugar, alcohol, and potash, may be produced almost beyond competition for the eastern or foreign market. I should not speak so confidently on these particular items had I not examined with some care all subjects necessary to their production. Fuel, of course, is an important matter, especially to a country that has no timber (wood) or forest growth. But for her immense forests Louisiana never could have engaged in cane-sugar production. The forests here have been wisely preserved; they are all safely stored in the earth and easily accessible. Coal is abundant in the country of the kind known as dry coal, a species of lignite, and of a superior quality—I believe I am safe in saying the best of the kind known on earth. I consider it as good if not better for generating steam and for evaporating purposes than even bituminous or anthracite coal. The formation is evidently extensive, and, though it has been subject to great disturbances and may in many places have been destroyed or moved away, enough has been discovered to prove that it still exists in great quantities.

I am firmly of the belief that beets may be produced here from twenty to twenty-

five tons per acre; some farmers of experience say fifty and some say even a hundred tons per acre. If such immense yields can be obtained anywhere on earth I believe it may be done here.

BEET-SUGAR MANUFACTURE IN ILLINOIS.

In a recent letter, in reference to the beet sugar enterprise commenced several years since at Chatsworth, Illinois, by the Gennert Brothers, Mr. M. L. Dunlap states that the operations of these gentlemen having come to a stand-still through want of capital, and more from want of practical knowledge of the business, Messrs. Bunn, Reynolds, and others took hold of the business with the purpose of redeeming the enterprise and to test thoroughly the practicability of making sugar from the beet in competition with the sugar-cane. They secured the services of William Wiferling, a native of Saxony, who has had twenty years' experience as a sugar maker in the best factories of Europe. He at once remodeled the works and successfully made up the crop of 1868, amounting to six hundred barrels of granulated sugar. The beets having been badly grown yielded only about four per cent. of pure sugar. This year one thousand two hundred acres were planted to beets, but the season was an unfortunate one for the experiment; the deluging rains sweeping away the plants and ruining the crop. Only two hundred and fifty tons of beets, or about the ordinary yield of twenty-five acres, were saved. Not discouraged by this failure, wholly due to an unpropitious season, the company is making preparations for further experiments. During the fall one thousand six hundred acres have been plowed; but whether the land will be planted to beets or to farm crops may depend somewhat on the results of certain new processes in separating the nitrates from the beet juice, now undergoing trial in some of the German factories. An excess of nitrates in the prairie soils of the West is complained of, and it is thought that, in the absence of these, it would be only necessary to wash the beets, reduce them to pulp, press out the juice, and boil it down to the point of crystallization. Mr. Wiferling is quite sanguine that this result will be reached. Thus far, however, the experiment has not resulted in establishing any practical facts, yet this failure has proved nothing against the enterprise. The beets are rich in sugar, but, as in all new soils, contain an excess of the nitrates. All that is needed to insure success is some cheap and certain mode of separating the nitrates; that obtained, the other difficulties will soon be overcome. At present the process is an expensive one, and requires great skill in the manipulation.

BEET-SUGAR MANUFACTURE IN WISCONSIN.

The enterprise at Fond du Lac, Wisconsin, appears to have been more successful. Mr. A. Otto, a practical German sugar maker, last year planted four acres of beets, near Fond du Lac, and fitted up cheap and simple apparatus for manufacturing. The crop turned out well and proved rich in saccharine matter, yielding a good quality of sugar. This year eighty acres were planted, and, notwithstanding the unfavorable season, the peculiar fitness of the soil secured a good crop of beets. More machinery was obtained, and the manufacture is now being successfully prosecuted; about one thousand pounds of a good quality coffee sugar being turned out every twenty-four hours, with improving results as the work progresses. The crop of beets is sufficient to occupy the works for at least four and a half months, which will give an aggre-

gate of one hundred and twenty-five thousand to one hundred and thirty-five thousand pounds of sugar. The process of manufacture is similar to that followed at Chatsworth, Illinois. The locality of Fond du Lac is said to embrace all the requisites to make the manufacture of sugar a prominent feature there.

SUGAR MANUFACTURE IN CALIFORNIA.

In California, the Sacramento Valley Company have established a complete sugar mill, though of small dimensions, and are now at work extracting sugar from one hundred and fifty tons of beets. Counting success certain, the company intend to enlarge their works for an extensive production in 1870. An experimental crop of Louisiana sugar-cane will also be planted on Twitchell Island, which has just been reclaimed. If the cane thrives a factory will be established on the island.

FISH CULTURE.

Mr. E. S. Woodford, of West Winstead, Connecticut, writes as follows upon this subject to the Commissioner of Agriculture:

My attention has been turned, for a number of years, to the subject of fish culture from the fact that there are more than one thousand ponds and small lakelets in New England, covering an area of over one hundred thousand acres, most of them nearly worthless now as food producers. Into almost all of these the voracious pickerel has been introduced, annihilating the trout, and, like the Kilkenny cats, their own species as far as possible, making no discrimination, in their sharkish propensities, between their own progeny and that of any other fish; and as the pickerel is only passable food in cold weather, the question for consideration is, what fish can be introduced into these thousand ponds that will make them productive of a large amount of delicious and wholesome food—for I believe that every acre of water is worth two acres of land if properly cultivated.

My experiments with the black bass during the past seven years have convinced me that it is the only good fish that can be propagated to any considerable extent where the pickerel abounds. I stocked the small lake (about three miles long) in this place, seven years since, with black bass, and had them protected by statute for four years, since which time immense numbers have been taken, varying in weight from half a pound to nearly five pounds. During the bass season (they only take the hook from May to September) it has been estimated that over one hundred pounds per day have been taken. Our commissioners on fisheries, aided by a liberal appropriation of the legislature of Connecticut, are doing all in their power to stock the ponds of our State, and make these waste waters produce, as they soon will, a large amount of wholesome food. Under their direction, I have stocked many of the ponds of this State with nearly two thousand black bass this season, beside taking them to Bangor and other places in Maine, for the commissioners of that State, and also to the little lakelets of the Catskill Mountain House, and many private ponds. Frank Forrester says of this fish:

"It is one of the finest of the American fresh-water fishes; surpassed by none in boldness of biting, in fierce and violent resistance when hooked, and by a very few only in excellence upon the board. It is in the swift glancing waters of the St. Lawrence, among the exquisite scenery of the Thousand Islands, that it affords the greatest sport to the angler. As the black bass attains to the weight of six or eight pounds, and is excelled in vigor, speed, and agility only by the brook trout, the salmon trout, and the true salmon, the sport which he affords when thus hooked can very readily be imagined; nor can he be brought to the basket by anything short of the best tackle and the most delicate and masterly manipulation."

The bass I have furnished were all taken with the hook, and were one, two, and three years old; they are kept in fish cans a few weeks, and only those suffer whose gills have been injured from being hooked. I have contrived an apparatus for aerating the water while transporting them, and find no difficulty in moving them any distance.

The black bass are incredibly prolific; they pair and spawn at one year old, making their bed in the gravel near the shore in shallow water, from the middle of May to the middle of July. The female, after spawning, retires to deep water to recuperate, while

the male guards the bed until the spawn is hatched, fighting away every intruder, thus securing the eggs from the depredations of other fish.

Robert B. Roosevelt, author of "The Game Fish of the Northern States," says:

"The black bass, belonging as they do to the perch family, have many of the habits, and can be captured in the same manner, as their congeners. But as they are infinitely superior in flavor, they are equally so in game and sporting qualities. They make their appearance from deep water in May and June, grow to great excellence in July and August, and are in their best condition in September and October."

Seth Green, the most successful pisciculturist in America, says: "Spend one-thousandth part of the sum spent in tilling the land in tilling the water, and fish may be sold in our market at two cents per pound. I have contracted to furnish our commissioners with one thousand or more bass for the next season. The selectmen, in towns where they wish ponds stocked, make application to the commissioners, who order the necessary number placed therein. From fifty to two hundred fish that will spawn the next season will, in a few years, produce an incredible number, and ponds that have heretofore produced only a scanty supply of pickerel will furnish a large amount of delicious and wholesome food."

To the disciples of Izaak Walton we say, the game qualities of the black bass (which are not equaled by any fish in New England) do not diminish in his new habitat, the picturesque and enchanting lakes of New England; nor his excellence upon the board; and as they can safely be transported to any part of New England (even those of eight to twelve inches in length,) philanthropists should aid in stocking all its waste waters, thereby supplying its people with the cheapest and most wholesome food indigenous to the country.

AMERICAN SUMAC.

A late dispatch from Liverpool states that the importations of sumac from Sicily in one day amounted to 6,417 bags, and that in the same time 1,200 bags were shipped to the United States. These are daily occurrences, and invite attention. If it is not singular that American sumac is not exported to Great Britain, it is really surprising that such large quantities should be imported into the United States. The value of this article, as is well known, is in the proportion of tannin it contains, and its freedom from sand, grit, or vegetable fiber. Liverpool authorities state that numerous well-certified tests, of both Sicilian and American sumac, prove beyond question that the American is superior, to the extent of ten to twenty per cent., to the Sicilian. The varieties compare as follows: Finest Sicilian: tannin 23.65; sand 1.00; vegetable fiber 75.35—100. Finest American, Virginian: tannin 30.00; sand .50; vegetable fiber 69.50—100. Adding the fractional differences in these disparities the result shows 20.70 per cent. in favor of the Virginia product. This superiority is not confined to Virginia, however; an analysis of Tennessee sumac showing of tannin 26.00; sand 1.50; vegetable fiber 72.50—100.

THE GREAT RAIN STORM.

James B. Francis, engineer of the proprietor's locks and canals on the Merrimac River, has been collecting data concerning the depth of rain collected in several rain-gauges during the storm which ended in Massachusetts October 4, 1869. He reports for the following places:

Places.	Inches.	Places.	Inches.
Newport, R. I., Fort Adams	0.90	Springfield, Mass	7.50
Providence, R. I., Brown University	0.83	Dover, N. H	3.20
Boston Harbor, Mass., Fort Warren	0.90	Concord, N. H	7.40
Boston, Mass., Office Sup't of Sewers	1.76	Weirs Landing, Lake Winnipisseogee	6.40
Kingston, Mass	1.75	Lake Village, N. H	6.77
Milton, Mass	1.15	Hanover, N. H., Dartmouth College, Shattuck Observatory	5.88
Jamaica Plain, Mass	1.45	Hartford, Conn., Water Works Reservoir	8.43
West Roxbury, Mass	1.46	Middletown, Conn., Wesleyan University	8.96
Lake Cochituate, Boston Water Works	4.00	New Haven, Conn., (R. gauge overflowed)	4.30
Cambridge Observatory	1.58	New Haven, Conn., (R. gauge overflowed)	4.30
Waltham, Mass	1.65	Wallingford, Conn	5.95
Topsfield, Mass	1.77	Brookfield, Conn	5.50
Lawrence, Mass., Pacific Mills	3.56	Colebrook, Conn	8.44
Lowell, Mass., Office of Locks and Canals	2.84	Lisbon, Maine	2.70
Lowell, Mass., Merrimack Manuf'g Co	3.02	Standish, Maine	4.31
Lunenburg	7.60	Burlington, Vt., University of Vermont	3.71
Fitchburg	7,53	Woodstock, Vt	6.35
Worcester Lunatic Hospital, (R. gauge overflowed)	4.75	Middlebury, Vt., (to 11 a. m., October 5)	3.98
Amherst College, (R. gauge overflowed)	5.83	New York, N. Y., Bureau of Sewers	4.11
Chicopee, Mass	8.71	West Point, N. Y., Military Academy	5.25
Springfield, Mass., U. S. Armory	8.05	Montreal, Canada, Water Works	1.46

MICHIGAN STATISTICS.

The following facts are collated from local reports:

In the Saginaw region 577,569 barrels of salt were made in 1869. The amount of money invested in the business is $2,432,500; number of men employed, 781. In the lumber districts of the eastern shore there are 212 saw-mills, with an invested capital of $6,822,000, which in 1869 cut 738,641,700 feet of lumber, 149,901,000 lath, and 243,820,000 shingles. Number of men employed at the mills, 5,204. In the lumber wood it is estimated that 10,250 men were employed last season, at wages varying from $20 to $25 per month, with board. Mill labor, $2 and $2 25 per day. The western shore lumber region includes the districts of Muskegon, Manistee, Ottawa, and Oceana. About 1,000 men are employed in the mills at Muskegon, exclusive of men in the woods. In that district 260,000,000 feet of lumber were cut in 1869. The products of the other districts in 1869 are not given, but they produced, in 1868, 480,000,000 feet of lumber and 250,000,000 lath. The season's work on the Black River, it is estimated, will be about 100,000,000 feet of logs, including a few million feet left over from last season.

From 12,000 to 15,000 acres of land are devoted to fruit culture in Western Michigan, the greater portion of which is planted to trees not yet in bearing. The average prices of fruit during the season were about as follows: Strawberries, per quart, 10 cents; raspberries, 12 cents; blackberries, 8 cents; apples, per bushel, 80 cents; pears, $3; cherries, $4; plums, $3; quinces, $4; peaches, per box or basket, 75 cents; grapes, per pound, 10 cents. The value of the fruit crop of the season is estimated as follows: apples, $113,392; peaches, $563,722; pears, $11,262; cherries, $2,520; grapes, $7,110; blackberries, $107,705; raspberries, $50,617; strawberries, $12,737; and plums, $1,100; total, $870,165. The total shipments from twelve ports in the region named

are stated as follows: Apples, bushels, 141,740; peaches, baskets, 751,630; pears, baskets, 3,754; plums, baskets, 490; cherries, baskets, 630; quinces, baskets, 446; grapes, pounds, 71,100; blackberries, quarts, 1,346,324; raspberries, quarts, 421,812; strawberries, quarts, 127,372; cranberries, bushels, 370; cider barrels, 660; tomatoes, baskets, 145.

NOTES ON THE AGRICULTURE OF COLORADO AND NEW MEXICO, No. 2.

The troublesome factor in the great problem of settling the vast trans-Mississippi plains is the supply of water. Furnish this in sufficient quantities, and such a stream of emigrants would pour across the "Father of Waters" as was never before witnessed. Furnish this, and the "Great American Desert" of old geographers would ere long compete in the grain marts of the world for precedence. What is now a vast meadow-like expanse, would in time become a field of waving grain. This is no exaggerated picture, for the soil of these plains is rich in the mineral elements which render it peculiarly adapted to the growth of the cereals.

Must this vast area be forever consigned to comparative inutility? Or, is there reason to hope, from any present indications, that it will, in the future, become sufficiently moist for agricultural purposes? And is there any influence within human grasp which can be wielded in aid of its redemption?

Although I cannot attempt a thorough discussion of these important questions in a brief article, yet I propose to present some thoughts in regard to them, and state a few facts ascertained during my recent tour through Colorado and New Mexico with Dr. Hayden's geological expedition. I am aware that the observations made during one trip through the country can furnish but slender data upon which to found a satisfactory conclusion on so important a subject. But I wish to bring the matter before the public that those in a situation to do so may be induced to collect the facts bearing upon it.

When we reached Cache à la Poudre Creek, going south, one of the teamsters, who had repeatedly crossed it during the past eight or ten years, remarked that it has contained more water for the last two or three years than when he first became acquainted with it. Although, at the time, I attributed this opinion more to the man's imagination than to a real increase in the volume of water, yet it suggested to my mind the possibility of a gradual increase of moisture, and I determined to make this subject a matter of inquiry and observation during our journey. Following up this intention, the result has been the clear conviction, in my own mind, that, since 1862 or 1863, there has been a gradual increase of moisture along the plains bordering the east flank of the mountains, from the northern limit of Colorado to Las Vegas, in New Mexico.

It is a common expression among the Mexicans, that the Americans bring rain with them. I understand the Indians express the same opinion. All of the older settlers with whom I consulted on this subject—and the number was considerable—stated without hesitation that, for six or seven years, there has been a continued increase of moisture throughout that portion of country. This was often mentioned without my calling attention to it. Knowing that the present year was an unusually

wet one in some sections, I called attention to this, that it might not influence their answer, questioning them in regard to prior years.

Not feeling satisfied with this evidence, I asked that creeks might be pointed out to me which, previous to 1863, usually went dry at given points, but since that time had been constantly running at those points. This was done in a number of instances. Even the Arkansas, as late as 1862, was dry from the Pawnee Fork to the Cimarron crossing, and previous to 1863 the Pecos dried up, so that the inhabitants were compelled, at points, to dig for water. I find in Emory's Reconnoissance of New Mexico the following remarks: "We rejoined it at the crossing of the Little Cimarron. * * * The grass good, and water plenty, *though not flowing.*" Again, in speaking of the Moro Valley, he says: "The plains are almost destitute of vegetation." Yet this is now one of the richest and best wheat-growing sections in the Territory.

In founding Denver, a mistake was made in building in the dry bed of Cherry Creek, supposing that, like an extinct volcano, it had heaved its last throe. But a sweeping flood taught the inhabitants to respect its slumbering powers, and bridges now span its bed, through which water occasionally runs, though mostly carried off above by ditches.

Another creek, north of the Platte, the Huerfano, the Roya Pecos, and others, may be named, all of which are now constant runners, which, previous to 1863, were accustomed to dry up during the summer and autumn. There are two instances where new streams have been formed, small, it is true, but now constant runners.

Acequias, in some cases, have been allowed to go to decay, because they have not been needed for the last two or three years. In others they have been but partially used. Near Boulder City, on the divide near Fort Union, and at other points, I saw fields of excellent oats and corn, where there was no chance for irrigation, showing clearly that the farmers not only *believe* in the increasing moisture, but act upon that belief.

Along the Rayada, last year, the rain was so excessive as to do considerable damage to the crops; and Colonel McClure, of Santa Fé, tells me the same thing has occurred in another valley this season.

With these facts before them, (for they are undeniable,) is it strange the citizens of these Territories claim that there is a gradual increase of moisture? Is it strange that many of the thoughtful ones look forward with hope to the time when an ample supply of water will rush down the valleys to make the broad plains and ridges yield as abundant crops as the valleys now afford?

Has the introduction of an active population into the country anything to do with this increase? I believe it has. But I am met with the objection that the amount of population is so very small, compared with the extent of the country. I admit the force of this objection; yet, until the climatic conditions of the country, and the relation of population to these conditions have been more throroughly studied, the objection should not be allowed to prevail. We know not how nearly counterbalanced the contending agencies of aridity and moisture have been. The effect of opening mines in the mountains, stripping and burning the pine forests, making roads along the cañons and over the plains, plowing up and planting the valleys, building towns, &c., &c., has not been sufficiently studied in the Rocky Mountain regions to decide what number of individuals is necessary to disturb the climatic condition. Be this theory right or wrong, the facts showing an increase cannot be denied.

It may be contended that this increase belongs to the latter half of a

cycle of years, which, terminating with 1869 or 1870, will begin to decrease. Although I do not think this theory will fully explain the facts, yet there are some grounds for supposing this to be the case, and as I have no desire to sustain a theory, if erroneous, I will name these grounds.

It is clear that 1862 was dry throughout the section of country under consideration; 1869 was a wet season in the same section. This would indicate seven years as the half and fourteen as the full cycle, (supposing the increase to terminate with 1869.) Counting back, 1855 would be rainy, 1848 dry, and 1841 rainy. The rain registers of Forts Garland and Massachusetts, the only ones I examined, (and these are defective, 1864, 1865, and part of 1866 wanting,) show the greatest number of inches in 1855 and smallest in 1863, reaching no further than 1853. Frémont's journal of 1842 indicates a rainy season east of the mountains. Emory's journal of 1846, which indicates a dry season, would somewhat conflict with this theory of a cycle. A more thorough examination of the records than I have the opportunity of making at this time may bring to light sufficient data to settle this point. But be this as it may, certainly it is a subject worthy of some attention. If the introduction of the present active population has a tendency to disturb the climatic conditions and cause even the smallest increase of moisture, then we may hope for an ultimate redemption of the broad plains which sweep out from the Rocky Mountain base. And an increase of moisture may arise not only from an increase of rain but also by retaining on the surface that which falls.

CYRUS THOMAS.

AGRICULTURAL RESOURCES OF JEFFERSON COUNTY, COLORADO.

Mr. E. L. Berthoud, of Golden City, Colorado, furnishes the following statement of the agricultural and the mineral resources of Jefferson County, Colorado:

Jefferson County, which was formed by an act of territorial legislature in 1861, lies between 105° and 105° 20′ of west longitude, and between 39° 11′ and 39° 55′ north latitude, having an altitude from 4,850 feet on its east boundary to 8,500 feet above the sea on its west boundary, in the Rocky Mountains.

The surface of the county lies about one-half in the prairie sedimentary formations at the east foot of the main mountain range; the other half lies wholly in the foot hills and in the igneous or primitive formation of the main range.

Population in 1869 is estimated at about 2,800. Valuation of all property in the county for taxation this year amounts, upon a very low assessment of value, to a total of $917,907, made up of the following items: 48,447¾ acres of land, valued at $356,799; 1,204 town lots, valued at $137,668; 1,297 horses, valued at $84,925; 131 mules, valued at $13,445; 4,006 cows and calves, valued at $95,242; 1,916 oxen, valued at $57,342; 1,126 sheep, valued at $2,612; 437 swine, valued at $2,149; 24 musical instruments, valued at $1,400; 182 clocks and watches, at $3,925; all other property, including money and credits, valued at $162,400.

There are in the county about one hundred and forty miles of large irrigating ditches, drawing their water from Clear Creek, Bear Creek, Ralston Creek, and South Platte River; besides several hundred miles of smaller, private ditches, used by each farmer for his own crops.

There are now located and partly completed fifteen miles of railroad from Golden City, the capital of Jefferson County, to the valley of South Platte River, where it is designed to make connections with the Union Pacific and the Kansas Pacific railroad, by which freight can reach this county and the main mining regions of Colorado Territory west of us, in Gilpin County, Clear Creek, Park, and Summit; and also carry eastward, to Denver and the valleys of Platte and of Smoky Hill, the lumber, coal,

grain, flour, and other supplies of the agricultural and pastoral resources of this county to these valleys, which must depend upon us for these supplies for a long time to come. Indeed, all the fuel consumed in Denver, and generally in the whole Platte valley, comes from the county of Jefferson and of Boulder, whether it is coal or common firewood.

As the county lies both in the plains extending east to the Missouri and in the Rocky Mountain range, the resources are three-fold: 1. Agricultural and pastoral. 2. Mining—coal, iron, copper, gold, fire-clay, plaster of Paris, building stone, lime and sand. 3. Lumber, firewood, charcoal, and miscellaneous manufactures.

There are now in the county sixteen saw-mills, one planing-mill, six shingle-mills, one brewery, one large tannery, three first-class flour-mills, one paper-mill, one pressed-brick press, with kilns complete; two potteries, manufacturing fire bricks, stone ware, biscuit ware, tiles, &c.; one fire-brick works; six coal mines opened, each producing two hundred tons to five hundred tons of excellent coal per annum; two stone-cutting yards; and one plaster of Paris mill.

Extending parallel with the mountain range—that is, north to south—and upheaved at a large angle, is a succession of not less than three beds of altered cretaceous coal, of excellent quality, almost entirely free from sulphur, and mined with great ease. These beds are from eighteen feet in thickness down to nine or even to four feet, with one, if not three, other beds of much less extent, and not over two and one-half feet thick. Beds of magnetic and of bog iron ore are found, of great thickness and in abundance; also copper, both sulphuret and gray copper, and chrysocolla; zinc blende, argentiferous galena, specular iron ore, saccharine gypsum, and selenite; silica or glass sand; enormous veins of valuable potter's and of fire-clay, alum sandstone; coal oil on Turkey Creek; nitrate of soda, and also soda, or alkali as we call it, both of which are deposits in our low valleys and on Platte River, formed perhaps from the decomposition of the soda or potash feldspars and alum rocks of our foot-hills.

Placer or wash-gold deposits occur to a limited extent on Clear Creek. They yield annually, in all, perhaps $1,500 currency, of a very pure quality of gold; but the limited extent of the gold-producing gravel, the more certainly lucrative returns of agriculture, manufacturing, and coal mining, make it but a very insignificant portion of our computed mineral wealth; and, though the whole bed and cañon of this creek are known to be full of rich, coarse gold, yet the great cost and difficulty of mining the bed of the streams have thus far baffled all attempts.

Although situated near the fortieth parallel of latitude, and at an altitude varying from four thousand eight hundred and fifty feet to eight thousand five hundred feet above the sea, yet the proximity of the high ranges of mountains west, and the vast plains of the Missouri east render us less subject to extremes of heat and cold than the same parallels on the Atlantic coast. The general rule is, open, mild winters, beginning in December and ending in April; a cold snap in December—if not in December in January—and again in March. Our snow-fall is in March and April. Frost is rare outside of the mountains after May 1st; and our rain-fall almost entirely from the end of May to August. During my residence of ten years in this territory and the great plains east, I have observed that, at the foot of the mountains, and especially in our newly cultivated and recently occupied farming valleys at Clear, Bear, Ralston, Boulder, St. Vrain, Thompson, and Cache à la Poudre Creeks, our rain-fall has more than doubled since 1860; and that our dry and formerly arid, sterile plain between South Platte and the mountains west, which incloses an extent of country averaging twenty miles wide by one hundred long, and cut crosswise by these valleys, has since been furrowed by innumerable irrigating ditches and high prairies farmed with most encouraging results. This cultivation, by increasing the growth of grasses, weeds, and bushes, has also created greater evaporation and moisture in our atmosphere, which return to us, when our east winds blow in summer, in most valuable, fertilizing showers. This year, 1869, no irrigation has been needed until late in the month, when most of the wheat and the best part of the oats, barley, and rye, were so far advanced that irrigation would not benefit them. It is a matter of universal remark here, among old settlers, that our high prairies, miles away from any stream, can this year be mowed with profit for hay, where a year ago grazing in July and August was only indifferent, the soil bare in many places, and parched or covered with worthless cactus or prickly pear.

Another erroneous impression which prevailed in the first settlement of this county nine or ten years ago, in respect to the great altitude of the lands above the plains, also retarded agriculture in our mountain regions by deterring many from attempting the culture of small grains, and even potatoes, upon the mountain farms, which were used only for hay and dairy produce. This, too, has passed away, and now our best potatoes, oats, and barley, grow from six thousand five hundred to seven thousand four hundred feet above the sea, and our turnips can not be surpassed in quality or quantity. Three hundred to three hundred and fifty bushels of most excellent potatoes are frequently raised to the acre.

The best small grains raised here for profit are wheat, oats, and barley. Pumpkins,

squashes, and corn are also raised. Rye does very well, but is yet not in much favor. As a general rule Indian corn does not do so well, and is not ranked as a paying crop north of the Arkansas valley. Our cold nights and freedom from dews are not favorable for its growth, and consequently reduce its yield; while irrigation apparently does not succeed so well as with the class of smaller grains, or with root crops. Of vegetables, our valley farms produce tomatoes, beets, parsnips, radishes, cauliflower, cabbage, lettuce, carrots, onions, strawberries, currants, rhubarb, &c., in abundance and of most excellent quality, with little expense in cultivation. Sweet potatoes do well in sandy soil, but require vigilant attention and continued cultivation. Orchards have not thus far been successful. Peaches and grapes would ripen well here, were our late frosts kept from injuring the buds by planting in more cold, sheltered, north slopes.

TABLE OF AVERAGE YIELD PER ACRE OF CEREALS IN JEFFERSON COUNTY.

Year.	Wheat.	Corn.	Barley.	Oats.
	Bushels.	*Bushels.*	*Bushels.*	*Bushels.*
1866	33. 0	33. 5	34. 25	44. 25
1867	29. 5	29. 0	21. 0	31. 10
1868	26. 4	42. 0	.....	33. 30
1869	24. 25	(*)	28. 0	38. 0

*None yet ripe.

METEOROLOGICAL OBSERVATIONS MADE IN 1867.

March.—No rain whatever; total snow-fall, ten inches; maximum cold observed, 20° Fahrenheit; maximum heat, 50°; the coldest month of March ever known in Colorado Territory; mean temperature for the month, 27.9°.

April.—No rain whatever; total snow-fall eleven and one-half inches; maximum cold observed, 28°; maximum heat, 78°; coldest day, mean temperature, 35°; warmest day, 69°; monthly mean temperature, 50.4°.

May.—Rain-fall, two and five-eighths inches; snow-fall, twenty-one inches; coldest day, mean temperature, 34°; warmest day, 67°.

June.—(Up to the 17th day of month.) Rain-fall, two and one-fourth inches; snow, none; monthly mean temperature, 67.4°; mean temperature of coldest day, 48.7°, June 7; mean temperature of warmest day 80°, June 13.

Thermometer used, by Tagliabue, Philadelphia, Pa.; altitude of point of observation 5,242 feet above the sea; latitude 39° 44′ north; longitude 105° 8′ west.

REGISTER OF PERIODICAL PHENOMENA.

Plants.	First appearance of—		Remarks.
	Leaf.	Flower.	
	1867.	1867.	
Berberis aquifolium	Evergreen	February 27	February cold and tardy.
Carex Willdenovii	April 9	April 17	
Agrostis alba	March 29	April 7 to 10	
Anemone multifida	May 5	May 19	
Erigenia bulbosa	April 17	April 20	April backward and cold; season three weeks later than usual.
Claytonia Caroliniana	April 9	April 11	
Prunus serotina	May 1 to 7	May 13	
Prunus Americana	May 10	May 10	
Ribes rotundifolium	April 13	May 10	
Saxifraga Virginiensis	May 5	May 10	May opens warm, yet very backward; Vasquez Fork begins its yearly rise the 10th to 12th.
Negundo aceroides	May 13	May 10	
Senecio tomentosus	May 10	May 10	
Cerastium arvense	May 3	May 10	
Viola pubescens	May 1	May 10	
Astragalus Plattensis	April 25	May 10	
Betula pumila	May 7	May 10	
Mertensia Sibirica	April 27	May 8	

The cold snap in March, from the 11th to the 15th, set all vegetation back from two to three weeks. Many April flowers have been retarded into May. Our grain crops also, from the cold snow-storms of April and May, were seriously retarded.

Aristida purpurea, Agrostis vulgaris, Agrostis alba, Alopecurus aristulatus, Bromus secalinus, Bouteloua curtipendula, Danthonia spicata, Elymus Virginicus, Calamagrostis Nuttalliana, Bouteloua oligostachya, Cenchrus tribuloides, Festuca elatior, Festuca nutans, Poa annua, Panicum capillare, Panicum crus-galli, Spartina juncea, Setaria glauca, Buchloë dactyloides, Stipa avenacea, Panicum sanguinale, Phleum Alpinum, Triticum repens, Brizopyrum spicatum, Aira cæspitosa, Glyceria pauciflora, Pleuraphis Jamesii, Festuca scabrella, Poa arctica, Sporobolus cryptandrus, Avena striata.

EASTERN OREGON AND WASHINGTON TERRITORY.

Philip Ritz, an intelligent settler in the Walla-Walla Valley, Washington Territory, supplies the following facts in regard to the agricultural resources of the great Columbia Plains:

The great Columbia Plains, lying east of the Cascade Mountains and west of the Blue and Bitter Root ranges, and parallel with them, and parallel with and about 300 miles east of the Pacific Coast, constitute one immense grazing ground, stretching from mountain to mountain, about 150 miles in width, and from the Klamath Lake on the southern boundary of Oregon in the south, far into British Columbia in the north, more than 400 miles in length, covered with the finest grass in the world, well watered in many places, with rivers and streams making down from the heavily-timbered mountains, through the plains, and drained by the noble Columbia.

Walla-Walla City and Walla-Walla Valley lie just north of the forty-sixth parallel of latitude, and about in the center of this country. This country is composed of a series of valleys, which are drained by the Deschutes, the John Day's, the Umatilla, the Walla-Walla, the Yakima, the Palouse, Spokane, and the Colville.

The soil throughout this vast region presents a great uniformity of character, being chiefly a light loam, with more or less alkali in all of it. Along and near the base of the mountains there are more loam and clay, and, consequently, more moisture retained in the soil than farther out in the valleys, although all the bottom lands along the streams contain a large amount of decayed vegetable matter, which, with the moisture arising from the streams, renders them extremely productive.

One of the great peculiarities of this country is its mild climate. At this place, in latitude 46°, we seldom have snow before Christmas, and throughout the fall, for more than two months, we have the most delightful weather, generally frost at night, but bright, warm days, with the thermometer ranging from 55° to 70°.

Singular phenomena, peculiar to this country, are the periodical warm breezes through the fall and winter, which spring up away down in the valleys of California, break through the low passes of the Sierra Nevada range, on the head of the Sacramento, and, passing through by the Klamath Lakes, sweep along the base of the Blue Mountains, and warm up the whole atmosphere beyond the 49th parallel. Such a breeze is now blowing, and at this writing, November 2d, 6 o'clock a. m., the thermometer stands at 73°.

This mild climate, with the abundance of the nutritious bunch grass everywhere, renders this pre-eminently a grazing country. Cattle and horses are seldom fed here during the winter, even as far north as the 49th parallel, but graze all winter on this dry grass, which, through the dry fall, has become cured standing, so that it is nearly equal to timothy hay; hence, even up to the very summit of the mountains, on the headwaters of the Columbia and Missouri, we can drive up cattle in the spring, from the range, equal to the best eastern stall-fed beef; and many of them have not tasted a morsel of hay or straw.

The atmosphere is salubrious and remarkably free from miasmatic impurities. In the summer the heat is rather intense during the day, but every evening brings with it a refreshing coolness, which is perfectly delicious.

Wheat, rye, oats, and barley grow finely, without irrigation, in all our soils which contain clay and loam, and can be raised on the sandy portions of the valley with irrigation. Three years ago, when our valley contained a population of less than 6,000 souls, all told, we raised about 1,000,000 bushels of grain, 700,000 of which was wheat.

I have seen large fields of wheat average 56 bushels to the acre, and weigh 62 pounds per bushel; and have seen fields which yielded 40 to 50 bushels per acre from a "volunteer" crop, that is, produced the second year from grain shattered out during harvest, sprouting during the fall and growing without even harrowing.

We generally raise the variety known as "Club," and sow it in the fall or spring.

We produce about 40 bushels of corn to the acre, of the large Yellow Dent variety, and it ripens nicely by the first of September.

The potato is perfectly at home here, growing large, fine, and mealy. I let a neighbor have nine pounds of the early Goodrich variety last spring, from which he raised 1,575 pounds. Sweet potatoes yield finely, but they are not so sweet as farther south. Turnips, beets, cabbages, tomatoes, peas, beans, onions, are all raised with ease and in great abundance.

Although this country has been settled but a few years, there are already a number of fine-bearing orchards. I commenced here six years ago last spring on ground that had never been fenced or plowed. After thoroughly plowing up about five acres of ground, I planted it in orchard with small yearling trees. This season I had 1,000 bushels of the finest peaches that I ever saw grown—fully equal to the best Delaware and New Jersey peaches—besides large quantities of apples, pears, plums, cherries, apricots, grapes, and every variety of small fruits. Fruits of all kinds are perfect in every respect in this climate, particularly plums, the curculio having never been seen. I have 100 bearing plum trees; one Imperial Gage, two years ago, produced 400 pounds of delicious rich fruit, which brought 8 cents per pound in gold; last year it had about the same amount of fruit, which sold for 12½ cents per pound, gold; many other trees did nearly as well. There are a large number of orchards just coming into bearing in the country, which will, of course, bring down the price of fruit.

The climate is so dry that we never see anything like mildew or rot on the grape. I had grapes last summer ripen and have a fine flavor, which lay entirely on the ground.

Fencing on these plains is an important item. We go to the mountains for all our fencing and lumber, from 8 to 20 miles. We can buy good fir rails in the mountains for $1 50 per hundred, with a good road to haul them out. There has been a large amount of fencing done in this valley by ditching, but it soon wears down, and farmers are now building good rail fences.

There is yet a large amount of good land to be had in the Columbia Basin, by going back a little from the settlements, at $1 25 per acre.

The facilities for getting here from the east are, by Union Pacific road to Kelton, 80 miles west of Salt Lake, or Promontory Point, thence by daily stage, 500 miles, through Idaho and Western Oregon, to this place; or by rail or Panama to San Francisco, thence by steamship to Portland, Oregon, thence by steamboat by Columbia River to Wallula, and thence by stage, 30 miles, to this place.

THE FOOT AND MOUTH DISEASE.

The following circular letter has been sent to the collectors of customs at the principal ports of the United States:

SIR: The department is advised that a contagious disease, affecting the hoof and mouth of neat cattle, is now prevalent in Europe, and as it is of the utmost importance that the introduction of this disease into the United States should be prevented, you are hereby instructed not to allow the landing of any animals brought into your port from England, or from the continent of Europe, except upon the production of a consular certificate that they are free from any contagious disease, and that no such disease prevails in the country from whence exported.

All regulations heretofore issued, which are inconsistent with these instructions, are hereby rescinded. I may also mention that under the date of the 29th of October last, the Secretary of State was requested by this department to instruct consular officers not to give certificates to persons shipping cattle to the United States, except in case where the animals have been examined by a government inspector, or other expert, and pronounced free from disease, and further, that no animals coming from the vicinity of the disease are to be certified by the consul.

GEORGE S. BOUTWELL,
Secretary of the Treasury.

W. C. Bland, veterinary surgeon, of Spunhamland, England, recently read a paper upon this disease, before the Newbury Farmer's Club. He states that this malady has been termed by medical authorities eczema epizootica and epizootic aphtha. The common name, however—"the foot and mouth disease"—is deemed the most expressive, because the eruption or vesication that forms the eczematous phase of the disease

has for its seat certain portions of the mouth, and the skin and tissues connecting the hoofs together. In its nature it is febrile; a fever, characterized by certain local manifestations; but it is a fever of a low type, distinguished by depressions of the vital powers. It is highly contagious, but actual contact between the healthy and the diseased is not essential to its contraction, as it may be communicated through the medium of the atmosphere or conveyed by the clothes of attendants. It is, therefore, infectious as well as contagious. The opinion is expressed that the epizootic eczema of England and the epizootic aphtha of France are one and the same disease, and evidence is adduced to show that the disease has been imported into England.

The causes of the disease are held to be twofold, predisposing and exciting. Predisposing causes may be defined to be those that bring about such a state of the system as renders it apt to take on any diseased action when the exciting cause is applied. Among these causes may be enumerated bad or insufficient food, over-crowded, ill-ventilated, and ill-drained sheds, and the presence of other diseases of a weakening or debilitating character. Exciting causes may be defined to be those which actually produce disease; thus, damp and cold air are the exciting causes of catarrh, common cold, and inflammation. The exciting cause of the disease is a specific poison conveyed from the body of a diseased animal to that of a healthy one. The disease is ushered in by a cold fit, manifested by a slight erection of the coat, cold extremities, frequent shifting of the limbs, and diminution of appetite. This cold fit passes off very quickly, frequently within half an hour, and is often so slight, and present for so short a period, as to escape observation. This is quickly followed by the hot fit. The coat resumes its natural appearance, the roots of the horns are unusually warm, the mouth presents a slight increase of saliva, the nose is dry, the pulse increased in number, (say to 70,) the feet tender, the animal occasionally shaking them, as if attempting to dislodge some offending body. From six to twelve hours after the commencement of the chill-fit, an effusion of fluid takes place under the cuticle or outer skin, at those places where it is most dense and void of hair. This effusion raises the cuticle in the form of four tensive vesicles, namely, on the dorsum, or top, and around the point of the tongue, under the upper lip, and on that portion of the gum on the upper jaw which is opposed to the incisor teeth. These vesicles sometimes form upon the end of the nose and around the nasal openings, upon the skin connecting the hoofs, and around the tops of them, and just at the heel of the horny sole; also upon the teats of cows. In about twenty-four hours the vesicles burst, giving to the ruptured cuticle a torn and ragged appearance, and through the fissures thus formed may be seen the true skin, reddened and inflamed. In the case of milch cows, at the commencement of the desiccation or drying up of the cuticle, a very troublesome and painful task is begun, it being necessary to remove the incrustation from the opening of the duct at every time of milking, thus causing unavoidable irritation, ulceration, and extended inflammation. The duct becomes swollen and impervious, and finally the whole gland becomes seriously affected. Under such circumstances the small milking syphon is of great use. If carefully passed (first smeared with olive oil or lard) up the duct, all the milk will run through it. From the bursting of the vesicles to the end of the third day, sloughing of the ruptured cuticle is carried on, during which period the animal is prevented from feeding to any extent, by the extreme soreness of the mouth. At the end of the third or fourth day, in severe cases, the animal presents a wretched appearance, looking empty, the coat

partially erect, head drooping, a constant flow of saliva, eyes sunken, and lying down most of the time, both from debility and tenderness of feet. From the end of the third or fourth day the process of recovery commences. The sloughed cuticle is gone, or nearly so, and the true skin is forming a new cuticle. By the end of the tenth or twelfth day recovery may be said to be complete, except, for a few days, a slight discharge of saliva and a tenderness in the feet.

Happily, the disease is not fatal. The consequences most to be dreaded are, loss of one or more quarters of the udder, from inflammation caused by retention of the milk, and the sloughing of the hoofs, which not unfrequently occurs where the cattle are driven from market to market while laboring under the disease. Other serious consequences are the temporary loss of milk in cows, and in the condition in all cattle.

As this disease has a distressing effect upon the vital powers, care must be taken not to use measures or to give medicines that will debilitate the system. Bleeding must not be thought of; drastic purgatives do much mischief; gentle aperients are admissible, combined with medicines calculated to allay fever without prostrating the animal; nitric spirit of ether, the acetated liquor of ammonia, cinchona bark, and gentian, will be found useful. A dose of these given, in combination, every second or third day, taking care to guard against constipation, will carry the patient through the disease. The general treatment will consist chiefly of good nursing. The best locality for cattle suffering from the disease, so long as the weather is not excessively cold and wet, is the open field.

AGRICULTURE IN THE NETHERLANDS.

From a report to the Department of State by Hugh Ewing, United States minister at the Hague, upon the agricultural progress of the Netherlands, some interesting statistics are herewith presented.

The total area of the kingdom is 3,283,997 hectares. Population 3,800,000, an increase of over 500,000 since 1859. In 1859 there were 101 inhabitants to the 100 hectares in the kingdom, and in the country 60 to 100 hectares. Agriculture and its branches employed 229,422 men and 95,349 women. To this number must be added, of hired persons, 115,000 men and 47,000 women, forming a total of 486,000; this proportion is considerably less than that of the agricultural class of Belgium or of Great Britain.

The total area in 1859 embraced 21 per cent. of waste lands, 224,750 hectares of woods, and 15 houses to each 100 hectares of land. In 1832 the cultivated land amounted to 897,442 hectares; and the waters to 130,845 hectares, of which one-thirteenth was in lakes and ponds, many of which have since been drained. From 1832 to 1852 lands were drained to the extent of 120,000 hectares, bringing the area of arable land up to 940,000 hectares. It is stated that from the year 1500 to 1858 the conquest of land over water was 355,000 hectares. From 1815 to 1858 the annual average was 1,066 hectares. In 1862 there were, in pastures 1,310,000 hectares, in cultivation 791,000 hectares, wood 319,035 hectares, and uncultivated 704,049 hectares. The average area in cereals and other farm products from 1856 to 1865 was 691,700 hectares; from 1862 to 1865 it was 703,200 hectares; and in 1866 it was 722,000 hectares.

The annexed table shows the aggregate area and yield of the principal crops for the years named, the area being given in hectares* and the yield in hectoliters†:

Products.	Area.			Yields.		
	1860.	1866.	1867.	1860.	1866.	1867.
Wheat	83,200	84,128	78,893	1,774,000	1,561,234	1,329,296
Rye	194,400	202,854	200,016	3,758,000	3,698,794	2,309,477
Barley	44,300	41,980	46,833	1,485,000	1,330,670	1,532,540
Oats	89,060	94,132	105,435	3,201,300	3,381,733	4,019,688
Buckwheat	64,400	68,325	68,153	1,232,000	1,241,941	1,481,770
Peas	.....	11,191	12,828	173,000	262,806	320,849
Beans	.....	32,141	34,546	721,340	719,833	577,838
Potatoes	95,860	109,353	111,265	12,472,000	13,119,495	15,165,453

The yield of beets in 1866 reached 120,000,000 kilograms;‡ chiccory, 25,261,562 kilos; hemp, 1,110,297 kilos; flax, 7,194,499 kilos; madder, 6,804,468 kilos; tobacco, 3,900,000 kilos. The production of beets for sugar has largely increased since 1860, and the number of sugar establishments has increased from four in 1859 to eleven in 1866.

The aggregate value of the cereal and other crops in 1866 was 116,081,000 florins, and in 1867 it reached 176,605,000 florins. The average annual product from 1861 to 1865 is valued at 161,053,000 florins, including the straw. The value of the wheat crop of 1867 was 19,909,767 florins; rye, 27,766,469 florins; buckwheat, 13,947,379 florins; barley, 12,079,131 florins; oats, 23,349,806 florins; peas, 4,112,980 florins; beans, 5,125,815 florins; oil seed, 4,586,175 florins; potatoes, 47,467,868 florins; beets, 1,304,000 florins; flax, filament and seed, 11,791,061 florins; hemp, 344,670 florins; chiccory, 475,820 florins; madder, 2,651,139 florins; tobacco, 818,321 florins.

The imports and exports of leading farm products are given as follows, in hectoliters:

Products.	Imports.			Exports.		
	1860.	1867.	1868.	1860.	1867.	1868.
Wheat	1,431,330	1,012,353	945,011	577,380	236,977	277,850
Rye	2,711,670	3,055,879	1,962,168	859,680	930,846	455,257
Barley	1,176,930	1,277,883	1,136,194	703,320	422,795	533,761
Oats	70,530	67,734	253,086	411,060	581,845	993,538
Buckwheat and millet	242,310	578,052	359,797	9,690	18,943	14,044
Rice, (kilogs)	29,759,105	41,544,849	54,736,117	21,772,125	13,444,230	12,143,812
Peas	80,430	40,517	24,361	21,090	27,745	41,936
Beans	12,980	39,506	33,311	87,330	54,338	55,479
Potatoes	228,945	235,695	196,809	225,267	327,195	703,249
Flour	20,981,365	23,940,263	29,912,652	2,828,060	2,204,700	2,548,679

The average annual importation of butter for the same series of years was 1,036,000 kilograms; cheese, 658,000 kilograms; and of exportation, butter, 16,462,000 kilograms; cheese, 28,831,000 kilograms.

* Hectare, 2.4711 acres. † Hectoliter, 2.83732 bushels.
‡ Kilogram, 2.204737 pounds.

The number of farm stock in the kingdom in the respective years named was as follows:

	1860.	1867.	1868.
Horses	242,528	253,662	255,130
Mules and asses	.....	2,706	2,706
Cattle	1,286,954	1,271,563	1,360,779
Sheep	865,829	967,312	927,215
Hogs	270,587	128,273	302,557
Goats	114,389	321,534	132,928

The average annual imports and exports of live stock for years from 1861 to 1865 were as follows:

	Imports.	Exports.
Horses	3,087	4,464
Colts	760	2,333
Oxen and cows	12,733	110,459
Calves	1,878	66,732
Sheep	27,433	286,419
Lambs	660	15,875
Hogs	33,195	85,473

From the autumn of 1865 to the summer of 1867 the number of cattle lost by the rinderpest reached 115,354. The statistics of 1867 show a rapid recovery, the number, 1,360,779, exceeding by 58,772 the average from 1856 to 1865, the period preceding the pest. The area appropriated in 1859 to feed animals was estimated at 1,400,000 hectares, being double that given to food for man. The relative values of the products of that year was as follows:

Value of Products of Vegetation.

	Florins.
Cereals, (seed deducted)	45,000,000
Plants, (raw material)	25,000,000
Potatoes, &c.	35,000,000
Wood	5,000,000
	110,000,000

Value of Products of Cattle.

	Florins.
Milk, butter, and cheese	85,000,000
Meat	30,000,000
Wool, hides, poultry, &c.	9,000,000
Young horses	6,500,000
	130,500,000

The statistics of vineyards and orchards are meager. There is a heavy export of fruit and vegetables to England. Gelderland, the cherry-producing province, yields 180 to 400 florins per hectare profit. North Holland has a considerable product of strawberries, raised principally at Aalsmeer. In 1860 the total product from 10 hectares was 200,000 liters, and in 1866 from 16 hectares 378,000 liters. Apples and pears are cultivated in nearly all the provinces. In 1866 the product of apples in Gelderland was 250 hectoliters per hectare. In South Holland 1,512 hectares are planted in fruit trees, and in 1866 the product of 1,324 hectares in apples and pears was 63,000 hectoliters. Vineyards are extensive in Westland, a district of South Holland. The grape is not suitable for wine-making, but for the table is said to be superior to the "Chasselas" of Fontainebleau and Versailles. In the vicinity of Munster, a village of the Westland, there are 27 miles of wall built in the fields for grape culture, estimated to produce three kilos per meter of wall.

The statistics of the fisheries show that in 1861 the value of the product of the herring fishery was 548,000 florins, employing 1,228 men and 82 doggers. In 1868 the product was 23,240 tons, of which 13,023 tons were

exported. The red herring fishery yielded in 1865 the sum of 772,025 florins; in 1866 but 561,341 florins. The amount of sea-fish taken by the Vlaardingen fishery in 1866 was as follows: Cod-fish 16,407 tons; dried cod, 4,225 tons; haddock, 2,880 tons. The exports from this point in 1865-6 were of salt cod, 7,550 tons; stock fish, 1,338,000 kilos. The exports of red herring in 1866 were 66,072,000 pieces; fresh pieces, 1,914,000 kilos; shrimps, 498,000 kilos. The product of the Zuider Zee in 1866 was 37,000,000 red herring; flounders 2,213,200; ancovies 65,000 ankers. In 1866 six vessels were engaged in the oyster trade, in the North Sea, taking 85,000 oysters; from the interior banks 26,000—total catch, 111,000. Fish in the rivers and other interior waters having diminished of late years, the government has taken measures to increase the hatch, particularly the salmon, by pisciculture.

FACTS FROM VARIOUS SOURCES.

A Maine correspondent of the New England Farmer, in comparing the net profits of farming in that locality in 1849 and in 1869, states that twenty years ago he paid $25 tax; for a hired man six months $60; board for man, $39; newspaper $2 50, total $126 50. In 1869 he paid $50 taxes; hired man $150; board for man $78; newspaper $2 50—total $280 50. By taking the ruling prices of his market he estimates the amount of each of the products named required in 1849 and in 1869 respectively, to pay his taxes, his hired man and his paper, showing the difference in favor of 1869, as follows:

	Prices.		Amount required to pay.		Surplus.
	1849.	1869.	$126 50 in 1849.	$280 50 in 1869.	In 1869.
Potatoes, bush	$0 17	$0 50	759	561	198
Corn, "	62	1 69	203	187	17
Beans, "	1 50	3 50	83½	80	3½
Hay, ton	8 00	20 00	16	14	2
Butter, lb	12	40	10 37	681	356
Eggs, doz	10	34	12 05	875	390
A good cow	12 00	40 00	10½	7	3½

If he sells potatoes to pay the bills named, it will take 198 bushels less now than in 1849; if corn is sold, 17 bushels less; if hay, 2 tons less; if butter, 356 pounds less; if cows, the price of three and a half less. His farm is also worth an advance of twenty-five per cent. over the value of 1849.

In urging the more extended culture of flax, California papers state that the oil mills established on the Pacific coast have been compelled to import two-thirds to three-fourths of the flaxseed required to keep them employed, though the soil and climate of that country are admirably suited to the production of flax. One mill has imported two hundred and fifty tons of the four hundred tons of flaxseed used during the current year. In comparing the respective profits of flax culture and wheat production, it is stated that one farmer in Santa Cruz County raised more pounds of flaxseed to the acre than his neighbor did of wheat, the fields adjoining each other. The flaxseed sold for four cents per pound, the wheat brought one cent and a half per pound. The flax straw sold for fifteen dollars per ton on the ground, while the wheat

straw was comparatively valueless. It is held that the tendency to wheat raising has been too general, in view of the fact that the price depends entirely upon a foreign market, while the State has been importing many supplies from abroad which could be as well and as cheaply raised at home.

A Solano County, California, correspondent states that several gentlemen in that county have about seventy acres in flax, and have been experimenting for the past three years with a view to ascertain the best time for planting, the most favorable character of soil, &c. They have planted in December, January, February, and March, and give decided preference to the January sowing, as regards certainty of sprouting, strength of stalk, and yield of seed. They find that summer-fallowed land is decidedly preferable. As between the sandy and adobe lands there does not seem to be much choice. As a matter of experiment, they have allowed a portion of their seventy acres to produce volunteer crops for the past two years, and they say that the soil bears none of the marks of exhaustion apparent on heavy wheat-cropping, while the yield continues good. The average yield on the seventy acres is about eight hundred pounds per acre, and brings in the San Francisco market four cents per pound. An experiment with hemp was confined to one-half an acre, planting in December. The stalks grew five to six feet high, and yielded abundantly. The seed brings eight to ten cents per pound in San Francisco, and the fiber sells readily at eighty dollars per ton, when properly prepared.

The same parties have raised considerable quantities of canary seed, which yield eight hundred to twelve hundred pounds per acre, and bring five to ten cents per pound in the market. Another party has this year raised fifty tons of coriander seed, (used in the manufacture of bitters, cordials, &c.,) the yield being about one ton to the acre. The price ranges from four to ten cents per pound. This lot was contracted for at four cents, but the purchaser sold it at fourteen cents on a sudden rise in the market.

Farmers of Monterey County, California, have been experimenting with the Chinese, sugar-cane, with gratifying success. It is found that fair average land, planted with this cane, will yield three hundred and fifty gallons of sirup to the acre. About thirty acres was also grown near Gilroy, San José County, and the crop will be more extensively grown next year.

A San Francisco correspondent states that his company have ordered fifty thousand ramie roots from New Orleans, which will be planted in moist soil. The company have contracted with an English house to take all they can produce. The company are also setting out twenty thousand cuttings of yellow ozier. They also have a large quantity of madder seed coming from France, and six barrels of white Silesian sugar-beet seed, sugar-cane, and bamboo, from the Sandwich Islands and China, which are to be planted. It is stated that fifteen thousand gallons of fine sorghum sirup is now in the market.

The Buena Vista vineyard, California, has produced this year about fifty-four thousand gallons of wine, against ninety-eight thousand last year, when the grape crop was unusually large. The amount of sparkling wine put up this year is fifty thousand bottles.

It is said that mackerel of good quality can be taken in large quantities in the waters surrounding the islands of the Santa Barbara channel, California. Parties have been engaged, the past season, in catching and barreling them to supply the local demand of the southern coast. They make what is known in the trade as No. 2 mackerel.

A comparative statement of the assessments in the several counties of California for the years 1868 and 1869 shows that the mining districts are falling off, while the agricultural counties are increasing in wealth.

In Los Angeles a gentleman has been experimenting with cotton, and the result convinces him that it may be successfully grown in that county without irrigation. The bolls gathered are of good size, finely opened, and the staple is said to be remarkably fine.

The Standish steam-plow, a California invention, appears to be working successfully. It has taken two gold medals, valued at two hundred dollars each, at the mechanics' fair in San Francisco, and a prize of three hundred dollars at the State agricultural fair. A writer speaks of it: "Crossing back and forth over the adobe flats of Sonoma County, cutting its twelve-feet swath, tearing up the annis and soap roots, and leaving them free from dirt, to wither and die in the sun; plowing at times two acres per hour, and giving the tough, dry, sun-baked adobe such a cutting and turning, raking and stirring, mixing and whirling, airing and pulverizing, as it never got before; and this, too, with a plow not intended for anything like such heavy work. An acknowledged success in ordinary soil, it was doubted if it would work in adobe. The doubt is now exploded. The present plow does much better than the inventor has claimed for it. He did not expect to work in this land, for want of sufficient power and strength, but set the plow in operation for the purpose of getting the data necessary for the construction of a plow especially adapted to this stubborn soil; but by strengthening some of its weak parts, it does its work in such a manner that the proprietor has been urged to stay and break up several hundred acres. He has applications to plow thousands of acres of lighter soil in the San Joaquin valley. The grain is, in some instances, plowed in, no harrowing being necessary, the plow leaving the surface level and smooth."

A local estimate gives the total cost of wheat production in Tuolumne County, California, including plowing, seed, sowing, harrowing, heading, and stacking and threshing, as $4 80 per acre, with an average yield of fifteen to twenty bushels to the acre. A farmer in Minnesota estimates his wheat this year to have cost him $12 19 per acre, with a yield of eighteen bushels to the acre.

The secretary of the Esperanza Agricultural Association, Brownsville, Texas, writing to the Department in reference to the neglected condition of the whole region of the Rio Grande since its acquisition by the United States, says that the above-named association has purchased a square mile of land near Brownsville, after having secured the consent of no less than seven owners. The only plow hitherto used here is known as the Mexican plow, a rude wooden implement, shod with iron. A farm wagon is unknown. Neck-yokes for work-oxen are also unknown, the cruel Spanish yoke having been exclusively in use. The hoe has been the only cultivator, sparingly used, and man the only planter. He says that two, and sometimes three, crops of corn may be grown upon the same land in a single year. Cotton thrives well, and picking usually lasts from June to late in December. Sugar-cane thrives, but has been raised hitherto only for eating in the raw state by the Mexicans. The *Palma Christi*, or the castor-bean plant, grows in a wild state, and a single instance of the cultivation of the small East Indian bean has yielded abundantly. Potatoes, yams, onions, and other vegetables give a large yield. All the country needs is an improved system of agriculture, division of lands, and the application of capital and intelligence directed to labor, to render this region one of the best paying farming districts of the State.

Recent exploration has practically demonstrated that the St. John's

River, Florida, is navigable for steamers 375 miles. The steamer Pannasofka, with a party under Dr. Moragne, president of the Inland Navigation Company, landed engineers on Lake Washington, at the distance named from the mouth of the river. From Lake Washington the party made a tour of inspection to Indian River, six miles distant. The lake is about ten miles long and five miles wide. The lakes through which the party passed are described as beautiful, and the country as much diversified.

Some time since several bales of California "tule," *Scirpus validus*, were sent to Germany to be experimented with as a material for paper fiber, and samples of a good quality of printing and writing paper were subsequently returned. More recently a lot of these tules has been received at New York for the same purpose, and it is stated that they make a good quality of white newspaper and wrapping paper, and would make an economical substitute for paper material less plentiful. The tule belongs to the same family as the ancient *papyrus*, and grows all over the world.

Sir W. Miles writes to the Wincanton Petty Sessions, Somerset County, England, that after having had the pleuro-pneumonia hanging on his herd for nearly eighteen months, he has arrested its progress by causing the herd to inhale carbolic acid night and morning, which stopped the disease. The acid was mixed with water, and sprinkled with a watering-pot on saw-dust, put under the fore-feet of the cattle when tied up. Cures are also reported by causing the cattle to inhale the fumes of sulphur.

The Pioneer Oil Company, of Salem, Oregon, has contracted for 2,000 acres of flax for 1870, and a California company has contracted for 3,500 acres, to be grown in Oregon. The Bombay or large-seeded flax is likely to be almost exclusively used until there is a home market for lint. The Pioneer Oil Company has manufactured 60,000 gallons of oil during the past year, and it is expected that 100,000 gallons will be turned out the coming season.

The San Francisco receipts of Oregon products from January 1 to October 30 of the current year, are reported as follows: Wheat, 30,961 sacks of 100 pounds; oats, 55,820 sacks; barley, 240 sacks; salmon, 1,837 barrels, 2,309 half barrels, 18,729 cases, and 1,599 packages; bacon, 4,468 packages; beef, 439 barrels; butter, 729 packages; cheese, 12 packages; hams, 411 packages; lard, 1,497 packages; pork, 1,194 barrels; dried apples, 2,897 packages; pig-iron, 825 tons.

The auditor of Washington Territory states that the total valuation of assessed property in that Territory, as returned to his office for the present year, is $7,844,142, being an increase of twelve per cent. over the valuation of 1868. During the twenty months ending August 31, 1869, the amount of public land disposed of at the Olympia land office was 180,249 acres, and at the Vancouver land office over 70,000 acres. Of the public lands in the Territory, 5,258,694 acres have been surveyed, about half of which lies east of the Cascade Mountains.

A planter in Jackson County, Texas, states that the castor-bean has proved a failure in that locality in protecting cotton against the ravages of the army worm. On the other hand, several thorough tests in other localities have been made with favorable results. Planters on the Rio Grande think the value of the castor-bean in this regard has not been overrated.

Local estimates of the wool clip of Michigan for the current year make the product 10,500,000 to 11,000,000 pounds, against 14,000,000 to 14,500,000 pounds in 1868. It is believed that not more than fifteen per cent. of the clip remains in the hands of the farmers, it having been marketed earlier than usual.

The annual meeting of the Milk Producers' Association of Massachusetts and New Hampshire, organized for the protection of milk producers, and the regulation of the milk business generally, was held in Boston on the 7th December. An encouraging degree of success was reported, and a proposition made that all farm products be included in the scope of the society's protection. The directors report that from the most reliable information they are satisfied that an amount not less than twenty-five per cent. of the entire quantity of milk sold in Boston is manufactured by the dealers by adulteration.

It is stated that two millions four hundred thousand cans of sweet corn have been put up in Maine the past season. There have been canned in New York city and vicinity this year 1,440,000 cans of tomatoes, and 224,000 cans of pine-apples. The business of canning peaches is almost wholly done in Baltimore, and the quantity put up the past season has been enormous. In Burlington, New Jersey, there are three establishments in which all kinds of fruit, vegetables, pickles, &c., are canned and bottled, giving employment to over five hundred persons, and about one million cans and bottles have been filled during the season. At Bridgeton, New Jersey, there are three canning factories, which expect to reach two millions cans for the year. Notwithstanding these large figures, the demand for these supplies more than keeps pace with the increase of production. The stock of pine-apples is said to be already exhausted, while the stocks of peaches, tomatoes, and corn are much reduced. During the heaviest canning season the demand for coke tin, for the manufacture of cans, was so great that the market price was materially affected thereby.

A New Jersey farmer has experimented as to the depth of sowing wheat, with the following result:

Seed sown to a depth of—	Appeared above ground in—	Number of plants that came up.
Inches.	*Days.*	
½	11	Seven-eighths.
1	12	All.
2	18	Seven-eighths.
3	20	Seven-eighths.
4	21	One-half.
5	22	Three-eighths.
6	23	One-eighth

The cotton crop of Stoddard and Dunkirk Counties, Missouri, for 1869, which was estimated at eight thousand bales, it is now believed will reach twelve thousand bales. The crop of 1859 in these counties was twenty-six thousand bales.

A farmer in New Hampshire, who has been experimenting in shifting seed potatoes, states that he planted in thirty-four hills seventeen potatoes, weighing four and three-fourths pounds, which were raised two hundred miles from his farm; and in the same number of hills he planted the same number and weight of the same variety, which had been planted on his farm for twelve years. The rows were planted side by side, and received the same treatment. The yield was as follows:

	New seed.		Old seed.	
	Number.	*Pounds.*	*Number.*	*Pounds.*
Large marketable potatoes	428	102	350	82
Small potatoes	630	32	780	51
	1058	134	1130	133

The farmer concludes that while a change of seed may not increase the aggregate weight of product, it will pay in the increased value of the crop for market. Of course this single experiment establishes no rule in the matter, yet the result is suggestive and should lead to other experiments.

A western farmer states that he has secured his young apple trees from the depredations of rabbits and mice during the past four years by leaving shocks of corn in the orchard through the winter. He finds that these mischievous creatures will not gnaw the trees when such shelter and feed are at hand.

The assessor's returns for 1867 show the acreage in apple, peach, and pear orchards in Ohio to have been, in round numbers, about 340,000. Apples produced 10,000,000 bushels; peaches, 1,450,000 bushels; pears, 75,000 bushels; total, 11,525,000 bushels. For 1868 the figures are, number of acres, 342,512; apples produced, 11,637,512 bushels; peaches, 599,499 bushels; pears, 66,712 bushels; total, 12,203,736 bushels. Estimating the apples at fifty cents per bushel, the value of this crop for 1868 would amount to nearly six million dollars; the peaches at one dollar and fifty cents, to nearly one million dollars; and the pear crop at one dollar and fifty cents, to nearly one hundred thousand dollars; making an aggregate of over seven millions of dollars. The average product of the orchards of the State in 1867 was only thirty bushels per acre; and for 1868 only thirty-six bushels per acre. Allowance should, of course, be made for the young orchards not yet in bearing. In what are termed the "bearing years" the average product is about fifty bushels per acre; in the alternate years, only twenty; making a general average of thirty-five bushels to the acre. Adding five per cent. as allowance for orchards not yet in bearing, the average would be thirty-six and three-fourths bushels per acre.

Dr. M. M. Phillips, of the Southern Farmer, in a private note to the statistican, thus presents an idea worth millions to the south, which the people of that section are too prone to ignore: "I say better have plenty of food, school-houses, churches, good roads, factories, improved homesteads, and twenty cents per pound for cotton, than gullied and worn farms, no comforts, corn at $1 50, meat at 20 to 25, with cotton at 25 cents. These people are selling cotton now at 23½ cents, and, I venture my ears, they will not have meat in June, and not a dollar. Why not make meat and have plenty, and no cotton? Why make cotton and spend all the money before six months and then no meat? I never did run mad after a big crop. Bread and meat first, then all the cotton profitable."

A writer in Greenville, South Carolina, pronounces the making of sugar from sorghum molasses a complete success, and considers the crop a valuable acquisition, and one that will pay as well if not better than cotton.

The present consumption of wood in the United States is enormous. It is estimated that one hundred and fifty thousand acres of the best timber is cut every year to supply the demand for railway sleepers alone. For railroad buildings, repairs, and cars the annual expenditure in wood is thirty-eight million dollars. In a single year the locomotives in the United States consume fifty-six million dollars worth of wood. There are in the whole country more than four hundred thousand artisans in wood; and, if the value of their labor is one thousand dollars a year, the wood industry of the country represents an amount of nearly five hundred million dollars per annum.

It is stated that the destruction of timber in the Ballarat district of Australia has been accompanied by a corresponding diminution of rain-

fall. In 1863 the fall was 37.27 inches; in 1868 but 17.23. During the first seven months of this year, ordinarily the wettest season, the rain-fall has been but 11.20 inches. In consequence of this the Victorian authorities have appointed an inspector of state forests, whose duty it will be to prevent the wanton destruction of trees, and to establish nurseries for forest trees in various parts of the country.

In illustration of the value of trees in a rainless region, it is stated that following the refilling of the old dried up basin of Lake Timsah with water from the Nile by canal, trees, shrubs, and plants are growing rapidly, as the soil becomes irrigated and the artificial oasis widens. Accompanying this extraordinary transformation of the aspect there has been a corresponding change in the climate. At the present time, Ismalia, during eight months of the year, is probably the healthiest place in Northern Egypt. The mean temperature from June to September is ninety-four degrees Fahrenheit, the four months following seventy-four degrees, and the four winter months forty-five degrees. Until two years ago rain was unknown, but in twelve months ending in April last there were actually fourteen days on which rain fell, and lately there fell a tremendous shower of rain, a phenomenon which the oldest Arab had never previously witnessed. Rain ceases to fall on a country deprived of its forests, or only falls in violent storms. Here we see rain returning to the desert on restoring the trees.

Of the 713,000,000 pounds of coffee produced annually, Brazil furnishes 400,000,000 pounds, or more than half of the entire product; Java, 140,000,000; Ceylon, 40,000,000; St. Domingo, 40,000,000; Cuba and Porto Rico, 25,000,000; Venezuela, 25,000,000; Sumatra, 25,000,000; and all others, including the Mocha, 18,000,000. The United States is the greatest consumer. We use in the United States nearly one-third of all the coffee consumed in the world, using nearly seven times as much as Great Britain, with a population not very far from the same. Germany comes next.

The consumption of tea in the United States amounts to more than thirty million pounds per annum.

METEOROLOGY.

COMPILED IN THE DEPARTMENT OF AGRICULTURE FROM REPORTS MADE BY OBSERVERS FOR THE SMITHSONIAN INSTITUTION.

Table showing the highest and lowest range of the thermometer, (with dates prefixed,) the mean temperature, and amount of rain and melted snow, (in inches and tenths,) for October and November, 1869, at the stations named. Daily observations made at 7 a. m., and 2 and 9 p. m.

States and stations.	October, 1869.						November, 1869.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.
MAINE.		°		°	°	*In.*		°		°	°	*In.*
Houlton	2	73	31	15	45.5	10.90	21	56	26.29	11	31.2	1.32
Steuben	1	71	28	20	45.5	6.21	4,6	56	19.26	17	33.6	5.50
Williamsburg	1	72	28	22	42.0	15.10	4	50	26	12	28.8	3.50
W. Waterville	1	77	28	23	47.5	13.87	4	58	26	19	34.0	3.41
Gardiner	1	72	28	25	47.1	12.67	4	56	26	20	34.6	3.10
Lisbon	1	83	28	17	46.4	9.90	4	70	11,26	15	33.4	4.91
Norway	1	77	28	19	44.7	15.10	4	61	26	16	31.9	4.45
Cornish	1	75	28	19	45.2	13.29	4	63	26	16	32.0	4.20
Cornishville	1	74	28	24	47.4	11.89	4	63	16	18	33.2	4.20
Averages					45.7	12.11					37.6	3.84
NEW HAMPSHIRE.												
Stratford	2	75	28,31	20	41.2	8.49	4	60	26	8	28.6	2.93
Whitefield	2	77	31	17	41.4	9.14	4	59	26	11	29.2	1.04
North Barnstead	1	83	28	25	48.1	13.17			26	9		
Tamworth	1	79	28	19	44.8	13.84	4	69	25,26	9	31.3	4.15
Concord	1,2	75	28	24	47.5		4	68	26	15	34.0	
Goffstown Center	7	72	28	26	47.9	15.71	5	63	16	18	35.1	2.84
Averages					45.2	12.07					31.6	2.74
VERMONT.												
Lunenburg	1	72	28	21	42.9	5.08	5	56	26	13	30.5	2.00
North Craftsbury	2	70	31	14	39.4	10.72	4	64	26	6	27.6	1.53
Randolph	1	77	28	21	43.3	10.45	4	59	25,26	9	30.3	2.04
Woodstock	1	71	31	20	41.9	12.90	4	57	26	7	30.0	2.29
Near St. Albans	2	73	31	22	43.4		4	60	24	8	29.9	
West Charlotte	1	77	28,31	26	46.5	11.38	5	60	25	19	34.7	1.53
Middlebury	1	68	28	27	45.7	9.28	4	56	25,26	18	35.0	1.30
Panton	1	74	28	24	45.1	14.05	4	58	25,26	18	33.9	1.49
Castleton	2	73	28	23	44.4	12.47	4	58	26	15	32.7	1.20
Averages					43.6	10.79					31.6	1.67

Table showing the range of the thermometer, &c., for October and November—Continued.

States and stations.	October, 1869.						November, 1869.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.
MASSACHUSETTS.		°		°	°	*In.*		°		°	°	*In.*
Kingston	3	80	28	26	52.2	6.20	5	66	16	22	40.3	1.55
Topsfield	2	76	28	19	46.9	5.22	4	64	16	16	36.2	1.73
Lawrence	1, 2	74	28	23	47.0	8.21	4	64	16	14	34.8	2.34
Georgetown	.....	.....	.....	.....	.....	.....	4	63	16	17	36.0	2.85
Milton	1	83	28	24	51.9	4.59	4	72	16	18	41.1	2.02
Cambridge	2	71	31	27	49.2	.....	4	76	16	21	40.1	.....
North Billerica	1	77	28	22	49.0	.....	5	70	16	16	36.9	.....
West Newton	1	82	28	28	50.2	6.28	4	70	26	19	37.8	.....
New Bedford	1	73	28	23	49.5	6.73	.....	.....	.....	.....	.....	.....
Worcester	1	74	28	25	47.9	9.81	4	69	16	18	33.0	2.43
Mendon	2	78	26, 28	26	47.3	7.50	4	66	16	13	35.4	2.51
Lunenburg	1	77	28	23	47.2	12.50	4	65	16	15	35.6	1.35
Amherst	1, 2	71	25,26,28	27	46.7	11.36	4	57	26	17	35.9	2.59
Richmond	.....	.....	.....	.....	.....	.....	4	62	27	14	31.5	4.30
Williams College	2	72	28	23	40.7	10.68	4	60	26	13	34.1	.....
Hinsdale	1	76	26	21	43.0	12.15	.....	.....	.....	.....	.....	.....
Averages	.....	.....	.....	.....	47.8	8.44	.....	.....	.....	.....	36.3	2.37
RHODE ISLAND.												
Newport	2	71	28	31	52.1	5.38	5	58	26	26	40.3	2.74
CONNECTICUT.												
Columbia	1	82	26	24	49.6	.....	4	76	25, 26	22	38.2	2.43
Middletown	1	81	26	23	47.4	14.51	4	63	26	18	36.9	3.06
Colebrook	1	76	26	21	44.4	12.46	4	67	26	12	33.2	4.03
Brookfield	1	77	26	27	50.6	9.90	20	66	26	25	39.6	5.60
Averages	.....	.....	.....	.....	48.0	12.29	.....	.....	.....	.....	37.0	3.78
NEW YORK.												
Moriches	2	79	21, 26	30	53.4	12.86	2	64	19	25	42.0	4.91
South Hartford	1	78	28	27	48.0	13.85	4	64	26	14	35.6	2.50
Fort Edward	2	78	28	26	47.9	.....	4	60	26	17	36.8	0.65
Hudson	1	79	27	29	48.6	14.40	4	65	1	24	38.5	2.72
Garrison's	1	74	26	25	48.6	10.49	4	67	26	22	36.1	4.27
Throg's Neck	1	72	22, 23	31	50.1	.....	4	60	25, 26	24	40.5	.....
White Plains	1, 2	72	26	26	49.8	.....	4	64	25, 26	23	39.7	.....
Deaf & Dumb Ins.	2	75	31	33	52.0	6.78	17	59	25	27	40.7	3.25
Columbia College	1	72	27, 31	32	50.7	6.30	4	60	25, 26	26	37.3	3.28
Flatbush	1	72	30	35	53.2	6.77	4	58	25	26	41.5	3.00
Glasco	1, 2	72	26	24	46.8	9.15	4	50	26	18	35.8	4.10
Minaville	2	76	27	25	45.9	7.20	4	58	25	7	33.6	2.75
Cooperstown	2	75	27	22	43.4	6.10	5	59	25	6	33.1	1.91
Gouverneur	2	72	27	18	44.7	5.67	.....	.....	25	–3	29.9	3.85
North Hammond	2	78	27	25	48.0	7.24	4	65	25	4	32.9	3.77
Houseville	1, 2	74	27	15	41.7	6.97	4	64	25	9	30.6	4.92
Leyden	2	70	27	16	39.9	7.60	4	59	24	13	28.5	4.90
South Trenton	2	71	31	27	43.2	5.63	3	64	25	6	32.0	6.61
Cazenovia	2	73	26,27,31	25	42.8		4	64	25	5	32.3	.....

Table showing the range of the thermometer, &c., for October and November—Continued.

States and stations.	October, 1869.						November, 1869.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.
NEW YORK—Con.		°		°	°	*In.*		°		°	°	*In.*
Oneida	2	78	27	27	45.7	8.93	.....	.....	.....	.....	.....	.....
Depauville	9	77	27	23	43.6	7.10	4	63	25	6	32.4	5.42
Oswego	2	75	31	30	48.6	5.10	4	62	25	15	35.4	2.93
Palermo	1, 2	75	27	23	43.1	5.10	4	60	25	5	32.2	3.10
North Volney	2	79	27	27	46.0	.....	4	65	25	11	34.3	.....
Waterbury	1	74	21, 31	18	41.5	.....	4	66	25	8	34.9	.....
Nichols	1	77	31	22	42.9	.....	4	61	25	6	35.3	.....
Newark Valley	1	76	21	20	45.6	4.10	4	65	25	0	34.1	2.70
Himrods	2	73	26, 30	28	46.6	3.19	4	72	25, 26	21	34.3	4.94
Rochester	2	73	26,27,30	30	45.5	2.83	4	66	24	22	36.3	3.58
Little Genesee	1	76	27	18	40.0	2.06	4	66	25	2	30.3	3.00
Suspension Bri'ge	9	78	27	25	46.2	.....	4	68	25	16	36.7	.....
Buffalo	9	80	27	23	45.1	3.30	4	68	25	16	35.2	3.25
Averages	.....	.....	.....	.....	46.2	7.03	.....	.....	.....	.....	35.1	3.60
NEW JERSEY.												
Paterson	2	75	26	26	48.1	8.04	4	61	26	24	38.2	4.00
Newark	1	72	26	29	49.6	6.82	4	60	25	25	38.9	3.09
New Brunswick	.....	.....	.....	.....	.....	.....	30	58	25	24	35.8	3.11
Trenton	1, 2	73	26	32	52.6	6.62	4	59	25	25	41.9	4.22
Rio Grande	2	82	25	26	50.7	6.75	3	62	26	21	40.3	4.13
Moorestown	2	75	26	26	48.7	5.66	4, 30	59	25	23	38.6	3.75
New Germantown	1	76	26	22	47.6	8.62	4	62	25	21	36.4	3.24
Readington	1	84	26	24	49.1	.....	4	60	25	22	40.1	.....
Haddonfield	2	77	26	27	49.1	6.63	30	59	22, 25	24	38.5	3.87
Newfield	2	81	26	22	49.0	.....	4	66	{10, 24 / 25, 28}	22	38.3	.....
Greenwich	2	74	26	29	50.6	5.43	4	58	25	26	40.1	3.48
Vineland	2	81	26, 31	27	50.2	6.75	4	63	1	20	39.0	4.42
Averages	.....	.....	.....	.....	49.6	6.81	.....	.....	.....	.....	38.8	3.73
PENNSYLVANIA.												
Nyces	1	71	31	18	41.0	9.70	4	58	19, 25	14	32.3	3.51
Hamlinton	1	78	26	24	46.8	8.06	5	60	24	21	36.7	3.40
Dyberry	1	75	26	17	41.8	6.40	4	67	25	13	33.2	2.86
Fallsington	2	75	26	30	49.7	6.10	4	57	25	25	39.0	3.70
Philadelphia	2	75	31	33	51.6	6.07	30	58	25	30	41.3	3.20
Germantown	7, 9	79	26	26	50.2	.....	30	59	10, 25	24	38.0	.....
Do	.....	.....	.....	.....	.....	.....	.....	.....	25	29	41.7	.....
Horsham	1, 2	74	26	27	50.0	6.49	4	60	25	25	37.6	4.50
Plymouth Meet'g.	2	76	26	27	48.6	7.70	4	60	13, 25, 26	26	38.1	4.06
White Hall	1	80	26	23	48.5	.....	5	58	19	22	37.2	.....
Factoryville	1, 2	74	26	18	42.8	6.97	4	61	25	13	34.1	2.41
Reading	1	71	26	29	49.5	9.49	5	61	25	27	40.2	1.81
Parkersville	2	73	26	29	45.1	5.78	5	60	26	24	38.2	4.05
West Chester	2	74	26	27	47.3	6.99	4	60	25	24	37.3	3.85
Ephrata	1, 2	70	27	30	50.1	8.97	4	66	25	26	40.5	3.19
Mount Joy	12	90	27	28	49.3	.....	.....	.....	.....	.....	.....	.....
Carlisle	1	78	26	26	48.0	6.30	4, 5	60	22, 25	26	38.7	2.70

Table showing the range of the thermometer, &c., for October and November—Continued.

States and stations.	October, 1869.						November, 1869.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.
PENN'A—Con'd.		°		°	°	*In.*		°		°	°	*In.*
Fountain Dale	1	69	25, 26	25	45.7	6.47	4	58	25	23	36.2	2.72
Tioga	1	74	26	18	42.4	2.65	4	66	25	10	35.1	2.90
Lewisburg	1	68	26	20	44.1	5.20	4	56	22	21	35.1	2.57
Grampian Hills	1	72	26	12	39.2	1.81	4	66	22, 25	4	28.3	3.27
Johnstown	1	72	26	16	44.0	2.28	4	64	25	11	33.5	4.07
Franklin	1, 9	75	27	17	43.8	1.97	4	67	22	10	33.5	4.52
Connellsville	9	74	25	20	44.3	.....	4	69	25	10	34.7	.....
Brownsville	.....	.....	.....	.....	.....	.....	4	68	25	20	39.1	.....
New Castle	2	70	26	23	44.8	.....	4	61	25	15	34.3	.....
Beaver	2	72	26, 27	26	46.5	0.40	4	65	11, 25	23	37.9	4.20
Canonsburg	1	81	26	18	43.6	2.00	4	69	25	16	36.1	2.35
Averages	.....	.....	.....	.....	46.1	5.61	.....	.....	.....	.....	36.6	3.33
DELAWARE.												
Milford	2	82	26, 27, 31	28	46.5	3.65	4, 30	62	25	23	39.1	3.50
MARYLAND.												
Woodlawn	2	74	26	28	48.5	4.79	5	62	25	24	38.3	4.20
Annapolis	2	77	25	31	52.9	7.19	4, 5, 30	60	12, 22, 25	25	42.8	3.51
St. Inigoes	2	78	31	31	54.0	3.50	5	63	24	25	42.3	2.51
Frederick	.....	.....	.....	.....	.....	.....	5	62	8	29	41.6	1.99
Mt. St. Mary's	1, 5	69	25	27	47.1	6.94	5	59	25	25	37.3	2.93
Averages	.....	.....	.....	.....	50.6	5.61	.....	.....	.....	.....	40.5	3.03
DIST. COLUMBIA.												
Washington	2	69	26, 31	32	50.6	7.33	5, 30	58	{ 8, 12, 22, 25 }	29	40.7	1.68
VIRGINIA.												
Johnsontown	2	82	27	36	54.8	3.45	4	64	26	27	43.4	2.25
Hampton	2	78	27, 31	34	55.2	3.80	17	64	22	27	43.5	1.20
Zuni Station	1	80	27, 31	33	54.6	4.97	17	66	12	26	42.1	1.42
Bacon's Castle	2	82	27	32	55.6	.....	5, 17	65	12	24	43.3	.....
Comorn	2	77	27, 31	33	52.6	6.98	5	65	8, 22, 25	28	41.7	1.81
Vienna	3	77	31	34	52.2	5.30	.....	.....	.....	.....	.....	.....
Piedmont	.....	.....	.....	.....	.....	.....	5	63	9, 22	23	41.9	1.80
Piedmont Station	.....	.....	.....	.....	.....	.....	5	62	16	22	38.5	1.80
Staunton	1	69	27, 31	30	48.1	3.14	4	63	8	28	40.2	1.06
Lexington	1	78	26	31	52.3	3.88	4	70	12, 22	20	40.8	1.38
Lynchburg	2	69	27	33	53.7	.....	4, 5, 30	61	22	29	43.4	.....
Snowville	2	76	27	22	46.1	3.60	4	68	25	13	35.8	3.37
Near Wytheville	1, 9	68	27	25	47.1	2.70	3	65	25	18	36.3	1.60
Averages	.....	.....	.....	.....	52.0	4.20	.....	.....	.....	.....	40.9	1.77
WEST VIRGINIA.												
Cabell C. H	1, 6	72	24	24	48.2	1.10	4	54	14	33	40.2	2.30
NORTH CAROLINA.												
Kenansville	2	84	28	34	60.3	.....	30	70	8	26	47.2	.....
Goldsboro'	2	88	31	32	59.3	3.35	30	74	26	27	47.4	3.15

Table showing the range of the thermometer, &c., for October and November—Continued.

States and stations.	October, 1869.						November, 1869.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.
N. Carol'a—Con.		°		°	°	*In.*		°		°	°	*In.*
Mt. Olive	2	82	31	29	56.5	2.50	30	64	22	24	44.4	2.00
Albemarle	2	78	28	22	51.8	2.75	5	72	1	18	41.0	4.00
Statesville	3	73	28	22	48.8	1.75						
Asheville	3	70	27, 28	24	49.0	1.80	2	64	1, 22	24	40.7	2.30
Do	2, 3	68	27, 28, 31	24	48.5		2	64	1	24	41.4	
Chapel Hill	1	85	31	48	67.9		27	72	25	30	51.4	
Averages					55.3	2.43					44.8	2.86
South Carolina.												
Aiken	4, 12	76	27, 31	36	59.9	1.37						
Gowdeysville	3	78	31	30	59.2	2.37	3	67	22	27	47.5	3.85
Averages					59.6	1.87						
Georgia.												
Atlanta	21	75	27	27	53.1	1.87	4	69	22	26	45.3	6.03
Berne	3	80	28, 31	36	61.2		16	76	21	29	51.1	0.75
Penfield	3	77	31	30	57.8	1.22	5	70	22	30	48.5	4.45
Averages					57.4	1.55					48.3	3.74
Alabama.												
Opelika	3	84	31	35	61.3	0.56	4	76	21	29	52.6	4.19
Carlowville	2	82	31	32	60.2	2.40	4	74	20	32	48.1	5.93
Moulton	2	72	31	31	48.9	3.91	4	64	1, 20	30	46.8	4.83
Greene Springs	1	81	27	32	56.8	2.50	30	73	20	30	50.6	5.10
Near Havana	1, 2	80	27	33	57.5	2.90	30	77	21	28	53.0	4.30
Fish River	2	84					6	76	21	36		3.00
Mobile	2	86	28	36	62.3	2.40	4	75	1, 7	38	55.4	3.22
Averages					57.7	2.45					51.1	4.37
Florida.												
Port Orange	12	85	31	49	70.9		16	81	21	36	60.8	
Jacksonville	22	87	31	44	68.1	4.15	16, 30	78	22	34	58.5	1.65
Pilatka	5, 12, 22	84	28	48	68.8	4.34	16	82	21	36	60.1	2.06
Ocala	11, 21, 28	92	17, 18	40	69.7							
Manatie	1, 2, 3, 4, 5, 9, 10, 11, 12, 19	88	31	56	76.2	0.50						
Chattahoochee	20	85	31	40	66.7	0.90	28	79	20	39		1.80
Averages					70.1	2.47					59.8	1.84
Texas.												
Gilmer	14	86	31	31	59.1	2.18						
Houston							12, 14, 21	84	16, 17	38	65.2	
Blue Branch	27	88	16	40	63.2	1.30						
Lavaca	1, 10	85	23, 24	46	66.0	5.90						
Austin	14	86	24	40	62.1	2.72	4	82	24	36	62.5	1.54
Clinton	4, 21	86	24	44	65.6	1.75	5, 22	86	17	42	66.9	0.25
Palestine	1	86	24	42	64.5	2.00	4, 15	84	24	39	63.5	
Averages					63.4	2.64					64.5	0.90

Table showing the range of the thermometer, &c., for October and November—Continued.

States and stations.	October, 1869.						November, 1869.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.
LOUISIANA.		°		°	°	*In.*		°		°	°	*In.*
Benton	1	88	31	34	60.3							
MISSISSIPPI.												
Grenada	1	84	27, 31	28	57.3	3.75	4	76	21	27	51.6	5.15
Near Brookhaven	1	83	28	36	60.6	7.30	4	75	1.25	38	59.2	5.40
Natchez	1	81	31	34	58.3	4.62						
Marion C. H.	8	88	28	32	61.1	3.60	26	82	18	30	56.2	5.70
Columbus	1	81	28	30	55.3	2.11	4	71	20	29	49.5	5.65
Averages					58.5	4.28					54.1	5.48
ARKANSAS.												
Helena	11	81	24	30	52.7		29	72	20	27	50.0	
TENNESSEE.												
Elizabethton	8	78	27, 28	22	50.5	3.70	3	72	1, 8, 21 / 22, 25	22	41.7	2.73
Tusculum Coll'ge	1	75	27	27	52.9	2.70	30	68	8	24	41.8	1.50
Lookout Mount'n	2	77	27	27	53.8		2	72	20	29	45.6	
Austin	8	76	26	24	50.1	4.60	4, 29	70	23	26	43.7	5.17
Clarksville	1	78	27	24	48.2	2.74	4	73	18	28	42.7	3.40
Trenton	1	81	27	24	52.4	2.60	4, 26	70	7	27	47.0	5.50
Knoxville							4	69	1, 25	25	42.3	3.00
Memphis	1	83	27	24	50.4	3.99						
Averages					51.2	3.39					43.5	3.55
KENTUCKY.												
Pine Grove	2, 8	76	27	17	46.8	1.65	4	70	8	18	39.1	4.09
Danville	1	82	27	23	50.5	1.82						
Shelby City	1	75	27	19	46.6		4	70	8, 15	22	40.9	3.20
Louisville	1	74	27	27	49.2	1.79	4	72	15	27	42.5	4.81
Near Louisville	1	79	27	18	47.1	3.16	4	71	11, 15	21	40.7	5.95
Averages					48.0	2.11					40.8	4.51
OHIO.												
Steubenville	2	73	26	25	48.0	0.59	4	59	8, 11	23	37.3	2.71
Painesville	2	71	25, 26	28	44.6	6.09						
Gilmore	2	80	24, 25	26	45.1	2.90						
Milnersville	1, 2	74	25, 26, 27	18	41.9	0.60	4	64	7, 8	14	35.1	3.20
Cleveland	8	74	25	24	44.9	2.66	3	70	24, 25	17	35.0	3.58
Wooster	8	80	25	22	46.3	1.80	3	72	11	17	35.9	2.87
Gallipolis							4	73	2, 8 / 25, 28	24	38.3	3.26
Kelley's Island	1	74	25	29	47.0	1.93						
Sandusky	8	74	25	24	44.9	2.96	3	67	25	22	36.4	4.26
North Fairfield	1	78	25, 27	24	45.0	1.57	4	64	25	18	35.6	4.52
Gambier	2	68	25	21	42.9	2.49						
Westerville	1	74	27	21	44.3	2.23	4	67	11	19	36.3	4.22
N. Bass Island							3	68	7	23	36.5	4.87
Marion	1, 8	71	27	19	42.3	2.31	4	66	11	17	34.1	4.95
Hillsboro'	1, 8	69	27	20	43.4	1.58	4	65	8	20	36.3	4.43
Toledo	1	77	25	21	44.3	2.81	3	70	24	16	34.8	4.56

Table showing the range of the thermometer, &c., for October and November—Continued.

States and stations.	October, 1869.						November, 1869.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.
Ohio—Continued.		°		°	°	*In.*		°		°	°	*In.*
Bowling Green	8	78	25	16	44.2	3.95	3	72	24	6	35.5	6.45
Kenton	1	74	27	22	50.4	3.10	4	69	8	19	39.5	3.04
Urbana Univer'y	1	76	27	20	43.7	1.89	3,4	67	11	16	34.5	4.21
Bethel	8	75	25,27	20	44.7	2.00	4	69	8,15	22	36.0	3.88
Jacksonburg	1	76	27	20	45.6	2.34	3	68	15	20	37.3	4.04
Mt. Auburn Inst	15	89	24	26	54.7	2.90	30	57	28	26	38.2	3.96
Cincinnati	1,8	78	25	21	45.4	1.80	4	71	28	23	38.6	3.30
Do	1,2,8	72	27	26	48.3	2.75	4	70	15	26	41.0	3.16
College Hill	2	76	27	20	45.8	2.63	4	70	15,28	22	38.5	2.89
Averages					45.6	2.43					36.7	3.92
Michigan.												
Monroe City	1	66	27	21	41.9	0.90	3	68	24	10	38.2	1.90
Alpena	1	64	25	28	43.6	1.36	4	58	7	20	33.5	1.20
State Ag'l College	7	74	27	18	40.8	1.72	3	71	24	4	32.1	1.93
Litchfield	1	72	25,27	20	39.3	2.78	3	65	24	.....	31.4	3.63
Coldwater	8	72	27	18	41.0	2.69	3	66	24	6	32.8	3.53
Grand Rapids	1	77	24,25,26, 27,30	26	42.7	.....	3	69	21	17	33.8	.....
Northport	1	76	24	24	42.7	5.08		66	7	22	33.1	3.50
Pleasanton	1,8	72	31	20	39.7	5.25	.....	.....	.....	.....	.....	.....
Muskegon	1	78	.....	.....	.....	.....	3	68	21	20	38.8	3.45
Otsego	7	72	31	30	44.9	.....	5	60	25	30	40.3	.....
Copper Falls	8	70	25	19	35.3	2.61	3	68	21,23	13	27.2	2.75
Ontonagon	8	70	23,24, 25,26	26	41.8	.....	3	60	24	16	32.8	.....
Averages					41.2	2.80					34.0	2.74
Indiana.												
Aurora	1	78	27	20	45.5	2.38	.....	.....	.....	.....	.....	.....
Vevay		77	27	21	46.5	2.97	4	71	15	21	39.6	4.74
Mount Carmel	1	74	27	16	44.4	2.80	3,4	68	8,21,23	24	36.9	4.02
Muncie	1	75	25	15	43.2	1.50	3	66	15,24	17	35.2	3.90
Laconia	1	76	27	18	46.0	2.32	4	73	15,18	25	40.2	5.09
Columbia City	1	72	25,27	18	45.1	1.30	3	65	24	16	37.9	1.88
Knightstown	1	76	25,27	16	42.9	1.79	3	66	28	18	35.5	6.81
Indianapolis	8	74	26	20	41.0	1.60	.....	.....	.....	.....	.....	.....
Bloomington	1	73	25,27	18	43.5	1.41	3,4	62	15	20	37.4	4.64
Near La Porte	1,8	74	25	17	44.0	1.70	3	66	28	12	34.0	4.05
Rensselaer	1	75	25	15	44.0	0.95	3	65	14,25,28	20	33.7	5.20
Merom	1	76	25	17	44.1	1.55	4	66	7,14	24	37.5	4.97
Kentland	8	79	28	15	44.5	2.30	.....	.....	.....	.....	.....	.....
New Harmony	1	78	27	20	46.8	1.48	2	67	7,14	27	40.4	4.98
Harveysburg	7,8	74	24	10	43.6	2.10	3	66	7,15,28	20	37.4	3.70
Averages					44.3	1.88					37.1	4.50
Illinois.												
Chicago	1,8	78	25,27	25	45.8	1.10	3	63	20	25	36.5	2.42
Near Chicago	1,8	76	25	16	43.0	.....	3	62	28	16	32.0	.....
Evanston	1	76	25	19	42.6	0.72	3	59	21	18	33.7	4.49

Table showing the range of the thermometer, &c., for October and November—Continued.

States and stations.	October, 1869.						November, 1869.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.
ILLINOIS—Cont'd.		°		°	°	*In.*		°		°	°	*In.*
Marengo	1	76	25	13	38.5	0.97	3	61	21	6	30.0	2.39
Mattoon	8	76	24, 25	20	45.5	.....	2	72	7, 14	24	38.5	4.16
Louisville	1	80	24, 25	15	43.9	2.60	2, 4	70	7, 14	20	39.2	6.80
Golconda	5	79	27	10	52.5	0.60	3	68	19	19	43.6	1.10
Belvidere	7	76	25	13	39.8	0.88	2	65	23	−2	29.7	2.50
Sandwich	8	74	25	12	40.8	0.70	2	63	24, 28	8	29.6	3.18
Ottawa	1	83	23	23	49.7	1.18	2	69	20	18	35.1	1.88
Decatur	7, 8	80	24	16	44.2	1.91	2	72	20	18	35.2	4.95
Pana	8	75	24, 27	18	44.7	1.35	2	70	7, 14, 18, 20	22	36.8	4.55
Winnebago	8	74	25	15	38.4	0.83	2	61	24	4	29.3	2.76
Rochelle	7, 8	75	25	13	40.2	.....	3	65	21	6	31.4	.....
Wyanet	8	78	24, 25	17	42.8	0.81	2	68	23	5	33.9	3.88
Tiskilwa	1	76	24	17	41.9	.....	2, 3	58	21, 24	14	34.5	.....
Hennepin	1	78	24, 25	18	45.0	.....	2	67	20	12	35.0	.....
Elmira	8	78	24	13	40.8	0.35	.....	.....	.....	.....	.....	.....
Peoria	8	77	24, 25	18	45.2	1.52	2	63	21	14	35.6	3.13
Springfield	5, 7	78	25	20	45.5	.....	3	69	21	18	37.1	.....
Dubois	8	73	25	13	46.1	1.35	3	72	15, 20	22	39.3	4.60
South Pass	1	73	25	27	46.5	1.87	1	61	24	10	33.0	2.80
Galesburg	8	80	25	16	39.4	1.50	1	61	24	10	33.0	2.80
Manchester	7	79	25	11	44.0	1.67	2	69	20	17	37.8	2.89
Mount Sterling	3, 7	72	26	18	45.7	1.30	6	70	20	12	34.6	4.70
Andalusia	8	75	25	20	43.8	.....	.....	.....	.....	.....	.....	.....
Augusta	8	78	26	16	44.0	2.21	2	65	21	11	35.4	3.43
Warsaw	7	80	26	22	46.1	1.92	5	89	20	16	36.3	3.71
Averages	.....	.....	.....	.....	43.8	1.30	.....	.....	.....	.....	34.9	3.48
WISCONSIN.												
Manitowoc	1	62	24	20	40.8	0.69	3	56	21, 24	12	32.5	3.15
Plymouth	7	67	24	16	38.4	1.20	3	63	24	4	30.9	3.70
Hingham	1	70	25	16	40.2	.....	3	68	24	2	31.3	.....
Milwaukee	8	75	24, 25	20	41.4	0.46	3	62	24	14	32.9	3.35
Appleton	8	69	24	20	43.0	.....	3	60	24	12	33.0	.....
Geneva	8	78	25	12	40.8	0.65	2	64	24	9	31.5	2.75
Waupacca	8	73	26	18	41.5	.....	3	61	21, 28	15	32.5	.....
Embarrass	8	71	21	14	38.8	0.87	3	58	24	5	28.9	2.66
Rocky Run	8	73	25	12	40.3	0.38	2, 3	58	24	1	31.1	2.38
Madison	8	71	21	17	37.7	0.66	3	60	24	12	30.4	1.97
Edgerton	7	78	25	18	42.3	1.10	1, 2, 3	62	24	.....	32.8	2.50
Baraboo	7	74	23,24,25	18	39.4	7.00	3	49	22	.....	28.8	9.25
New Lisbon	9	80	26	14	42.5	.....	3	65	24	−4	30.1	.....
Averages	.....	.....	.....	.....	40.6	1.45	.....	.....	.....	.....	31.3	3.52
MINNESOTA.												
Beaver Bay	5, 6	62	23	15	36.9	1.11	.....	.....	.....	.....	.....	.....
Afton	7	73	23	15	34.9	0.92	3	66	21	2	28.3	0.90
St. Paul	6, 7	71	23	17	39.6	0.88	3	65	21	6	30.1	0.75
Minneapolis	7	73	23	12	37.3	0.65	3	67	21	2	27.5	0.68

Table showing the range of the thermometer, &c., for October and November—Continued.

States and stations.	October, 1869.						November, 1869.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.	Date.	Max. temp.	Date.	Min. temp.	Mean tem.p.	Rain and melt'd snow.
MINNESOTA—Co'd.												
		°		°	°	*In.*		°		°	°	*In.*
Sibley	6, 7	72	23	11	39.5	0.03	3	68	3	1	27.3	1.01
Koniska	6	64	24	9	36.7	0.50						
New Ulm	6, 7	70	23	16	39.7	0.61	3	70	30	1	28.8	0.60
Madelia	6	78	23	13	40.4	0.64	3	70	30	–2	27.9	1.46
White Earth	5, 6	72	22	10	33.9	6.55						
Averages					37.7	1.32					28.3	0.90
IOWA.												
Clinton	7	80	27	12	41.6	1.50						
Waukon	7	75	26	10	37.7		2	62	21	4	29.2	
Dubuque	7, 8	74	26	20	42.3	1.50	3	60	21	8	31.7	1.69
Monticello	7	76	26	16	40.2	1.35	1	66	24	10	30.9	2.65
Bowen's Prairie	7	74	24	14	40.4	2.30	2	62	20	6	29.9	2.15
Muscatine							1, 3	56	21	3	32.6	
Fort Madison	8	76	26	16	42.5	2.00	3	67	20, 21	14	35.6	3.31
Guttenberg	7	81	25	8	38.3		2	61	21	–4	29.1	
Mount Vernon	7	72	24, 26	16	40.5		2	62	21	5	31.0	
Iowa City	7	78	26	16	42.7	2.07	1	70	21	5	32.1	4.49
Independence	7	77	26	12	39.9	1.50	2	66	21	–1	29.9	1.55
Waterloo	7	80	26	14	39.8		2	68	21		30.6	
Vinton	7	77	26	18	41.6	1.05	2	69	21	5	31.3	2.50
Rockford	7	71	23	18	41.8		2	63	21	8	32.1	
Newton	7	80	26	12	41.2	1.50	2	65	21	–2	31.1	0.77
Algona	7	75	26	10	40.2		3	57	21	3	29.4	
West Bend	7	76	26	12	37.8		2	63	21		27.0	
Mineral Ridge	7	81	26	13	41.8	2.39	2	65	21	7	31.4	3.90
Boonesboro'	7	75	23	13	40.3		2	63	21	2	30.1	1.30
Fontanelle	7	79	26	13	40.9	0.63						
Rolfe	7	84	26	8	41.1	0.30	2	66	21	–5	28.9	2.14
Grant City							2	70	23, 30	6	29.2	1.75
Logan	7	74	23, 24	12	40.5	0.80	1	64	13	4	31.6	1.30
Woodbine							5	72	13	4	34.5	
Averages					40.6	1.45					30.9	2.27
MISSOURI.												
St. Louis Univ'y	8	77	26	26	50.0	1.75	2	68	20	25	41.1	4.75
Allenton	7	86	25	14	45.6	2.74	1, 2	74	7, 20	20	39.8	5.66
Hematite	8	79	25	14	48.0	2.45	2	77	7	18	41.1	5.20
Rolla	8	78	26	18	44.8	2.53	2, 4	70	7, 21	21	40.2	5.05
Jefferson City	6, 7	72	25	19	46.0		1	68	21	21	44.0	
Keytesville	3, 7	76	26	17	44.0	2.90						
Hermitage	7	79	26	12	43.6	2.32	1	74	24	16	39.3	3.25
Bolivar	3	76	25	24	54.9	1.21	1, 4	68	19, 20	23	39.4	6.50
Harrisonville	7, 13	76	26	20	46.1	0.16	1	68	21, 24	22	38.5	1.60
St. Joseph	7	79	23, 26	23	50.8	0.20	4	62	21	18		
Oregon	7	85	26	16	45.8	1.24	1	64	21	14	36.5	1.49
Averages					47.2	1.75					40.0	4.19

Table showing the range of the thermometer, &c., for October and November—Continued.

States and stations.	October, 1869.						November, 1869.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.
KANSAS.		°		°	°	*In.*		°		°	°	*In.*
Atchison	7	82	26	12	45.7	2.00	3	68	21	18	36.7	2.20
Leavenworth	7	80	26	12	43.8	1.26	2	68	21	16	31.1	2.33
Olathe	7	80	26	12	45.2	2.70	1	69	21	18	36.9	1.70
Paola	7, 13	82	26	15	46.9	1.80	2	75	21	18	36.6	2.11
Baxter Spring	7	80	23, 25	24	51.2	2.41	.....	.....	.....	.....	.....	.....
Lawrence	7	77	23	16	43.8	0.69	1	71	20	25	42.4	1.86
Holton	7	82	26	11	45.3	.....	3	66	30	18	36.4	.....
Neosho Falls	13	78	26	12	41.7	1.20	1	70	21	17	37.8	1.10
State Ag'l College	7	79	23	14	44.8	0.43	3	65	19, 30	20	37.3	1.19
Council Grove	7	84	26	24	48.4	1.20	3	71	21	22	41.1	1.80
Crawfordville	13	78	23, 26	20	46.7	0.85	.....	.....	.....	.....	.....	.....
Averages	.....	.....	.....	.....	45.8	1.45	.....	.....	.....	.....	37.4	1.79
NEBRASKA.												
Omaha Mission	1, 3, 5, 6	76	23	20	47.1	1.10	3	70	30	9	32.9	1.50
Elkhorn	7	78	24, 26	16	43.0	.....	2	62	30	11	32.6	.....
De Soto	7	78	23	10	42.7	0.80	1	59	30	9	31.5	1.13
Fontanelle	6	79	23, 24	16	.....	.....	.....	.....	.....	.....	.....	.....
Bellevue	7	80	24	19	45.3	0.40	1	63	13, 30	16	35.2	1.40
Glendale	7	82	23	10	42.1	0.75	.....	.....	.....	.....	.....	.....
Nebraska City	7	79	23	19	45.6	0.53	2, 4, 5	60	30	15	34.8	2.05
Averages	.....	.....	.....	.....	44.3	0.72	.....	.....	.....	.....	33.4	1.52
UTAH TERRITORY.												
G't Salt Lake City	.....	.....	.....	.....	.....	.....	3	65	2	22	42.8	.....
Coalville	12	84	25	18	46.0	.....	6	65	27	5	39.2	.....
CALIFORNIA.												
Monterey	3	90	28	42	59.5	1.36	6	77	26, 27, 30	35	55.1	0.72
Watsonville	2	95	13, 14	40	53.6	2.05	4, 19	84	27	31	55.6	0.16
Vacaville	10	90	30	53	66.4	2.57	4	78	30	39	60.6	2.44
Averages	.....	.....	.....	.....	59.8	1.99	.....	.....	.....	.....	57.1	1.11
MONTANA TERR'Y.												
Deer Lodge City	4	79	19	.....	35.7	.....	1, 2	68	15	8	34.1	1.59
WASHINGTON TER.												
Port Angelos	4	59	22, 23	48	54.1	1.50	.....	.....	.....	.....	.....	.....
Walla-Walla	.....	.....	.....	.....	.....	.....	19	62	27	27	45.0	.....

NOTES ON THE WEATHER.

OCTOBER, 1869.

Houlton, Me.—Violent wind and showers 4th; auroras 2d, 25th, 28th, 31st, the last brilliant, showed pink and purple; earthquake, rumbling, then shaking, 22d.

Lisbon, Me.—Fine auroras 2d, 8th, 31st; earthquakes at 5.30 a. m. 22d; first, ten seconds; second, five seconds; motion east to west.

Steuben, Me.—Auroras 1st, 24th, 25th, 27th; earthquake 22d, shook down stoves; lasted a minute; moved to southwest; first snow 26th.

Williamsburg, Me.—Aurora 6th; ground froze 19th, ice 20th; earthquake, west to east, 22d; first snow 29th.

West Waterville, Me.—Auroras 2d, 6th, brilliant 31st; greatest rain known, destructive freshet 3d, 4th; first freeze 20th; earthquake 22d; nearly fifteen inches snow 29th.

Gardiner, Me.—Auroras 1st, 2d, 4th, 6th, 25th, 26th, 27th, 31st; earthquake 22d; October average mean temperature for thirty-three years 47°.021; moisture, average for thirty-three years, 4.52 inches.

Norway, Me.—Auroras 2d, 6th, 31st; heavy rain and freshet 4th; earthquake 22d.

Cornish, Me.—Auroras 2d, 4th 5th, 6th, 25th, 31st; earthquake 22d.

Cornishville, Me.—Greatest rain known 4th; ground frozen 19th; October average mean temperature for forty years 46°.

Antrim, N. H.—Great rain and flood 4th; bright aurora 31st.

Stratford, N. H.—Month cold, wet, snowy; brilliant aurora 31st.

Whitefield, N. H.—Auroras 1st, 2d, 6th, 25th, 31st; heavy rains 3d, 4th; earthquake 22d; snow on seven days.

North Barnstead, N. H.—Very cold, ground frozen two inches.

Tamworth, N. H.—Highest flood known 4th; auroras 6th, 24th; first ice 6th; another flood 11th; earthquake 22d; first snow 27th, but on mountains 19th.

Goffstown Center, N. H.—On 3d, 4.27 inches rain in three hours, flood destructive. The month wet beyond all precedent.

Lunenburg, Vt.—Greatest rain and flood 3d, 4th, 5th; another very great 10th, 11th; earthquake 22d.

Randolph, Vt.—Greatest rain in nineteen years 3d, 4th—five inches in thirty-six hours; another of 3.75 inches 10th, 11th, 12th, 13th; aurora 6th.

Woodstock, Vt.—First snow-flakes 18th; earthquake 22d.

West Charlotte, Vt.—Great rains 3d, 4th; first frost since 7th of June, 7th; crimson auroras 9th. 12th; white 25th, light 31st. Greatest floods, and highest rise in Lake Champlain in forty years.

Panton, Vt.—Auroras 6th, 22d, 25th, 31st; hail 18th, 19th; first frozen ground 26th—an inch of snow 27th.

Castleton, Vt.—Rain all day 3d; windy 4th; frost 6th; ice 25th; auroras 25th, very wide, yellow, green and blue streamers 31st; snow 27th, 28th.

Kingston, Mass.—First killing frost 20th; slight earthquake 22d; first snow 27th; aurora 31st.

Milton, Mass.—Two earthquake shocks, rung door bells, lasted two seconds, 22d; first snow 28th.

North Billerica, Mass.—Slight earthquake 22d; auroras 25th, 31st brilliant; ice 25th, snow 28th.

Worcester, Mass.—Heaviest rain for years 4th; thunder-storm 13th; snow 27th, 28th, 29th; aurora 31st.

Mendon, Mass.—Heavy frost 20th; earthquake of 22d not felt here; bright auroras 25th, 31st.

Lunenburg, Mass.—Damaging floods 3d, 4th, loss in Fitchburg $150,000. October average mean temperature for thirty years 50°.34.

Amherst, Mass.—Rain-gauge overflowed at 5.83 inches, 3d, 4th; auroras 6th, 31st; snow covered ground 27th.

Hinsdale, Mass.—Rains and floods 3d, 4th; snow 27th to 31st; freezing nearly every night 21st to 31st.

Newport, R. I.—Vegetation yet green 7th; first ice 26th; splendid aurora 31st.

Columbia, Ct.—Greatest rain (thirty-three hours) in years 3d, 4th; killing frost 7th; rain on ten days.

Middletown, Ct.—Greatest rain known here 3d, 4th; auroras 6th, 31st brilliant; first hard frost 20th. More rain in October than any month ever observed here.

Colebrook, Ct.—Heavy frost 5th; snow squalls 20th and 26th to 30th.

South Hartford, N. Y.—Month memorable for immense rain-fall of 11.8 inches between 3d and 14th, (5.90 inches in one storm,) and the great damage ensuing. Nine inches snow also fell after the 17th.

Fort Edward, N. Y.—Heavy rains and floods 3d, 4th; first snow 27th.

Garrison's, N. Y.—First hard frost 21st; aurora columnar and diffused 31st.

New York City.—Auroras 6th all night, 25th, 31st; first white frost 20th.

Glasco, N. Y.—Greatest rain in many years 2d, 4th; first frost 7th; aurora 31st.

North Hammond, N. Y.—Hard frost 25th; snow 24th, 28th, 29th, ground covered six inches deep.

Leyden, N. Y.—Snow ten to twelve inches deep from west, on green fields and full-leafed trees 18th, 19th; snowing 20th, 24th, 25th, 26th, 28th, 29th, 30th, three inches deep 31st.

South Trenton, N. Y.—First snow 18th; 8.75 inches in October; hills covered 31st. Acres of corn unhusked. Most unfavorable October for farmers in thirteen years.

Depauville, N. Y.—First snow 25th; greatest October snow-storm in thirty-eight years, 26th to 31st; roots, apples, corn mostly ungathered.

Palermo, N. Y.—Rain-storm 2d to 5th; hard frost 6th, 7th; thunder, hail, rain, 18th, with snow 19th. Coldest October in sixteen years except 1865.

North Volney, N. Y.—First frost, heavy, 6th; aurora 6th; first snow 10th. Snow fell on eight days.

Little Genesee, N. Y.—October closed with a week of winter. Root crops and corn ungathered.

Buffalo, N. Y.—Killing frost 14th; snow-flakes 19th; eight inches snow 25th, 27th. October 5°.2 below the October average for 12 years; the last half stormy, and the last eight days averaged only 1° above freezing.

Newark, N. J.—Heavy rain 3d, 4th; first hard frost 17th; first ice 21st. Mean temperature below all but one of 26 Octobers preceding, and about 3° below their average, (52°.54;) the warmest, 1866, 56°.62; the coldest, 1859, 48°.61. Only one exceeds it in rain.

Trenton, N. J.—First ice 7th; first snow, in squalls, 28th.

Moorestown, N. J.—First frost 20th; first ice 21st.

New Germantown, N. J.—Destructive freshet 4th; auroras 25th, 31st; hail 28th; snow 30th.

Newfield, N. J.—Wild geese 1st; heavy rain 3d; auroras 6th, 25th; ice 21st; snow squalls 30th. A cool, wet month.

Greenwich, N. J.—Pouring rains 3d, 4th; first killing frost 21st; ice 26th; frozen ground 27th; bright, flashing, red and blue aurora 31st.

Vineland, N. J.—First killing frost 21st; snow-flakes 30th.

Nyces, Pa.—Cold month; ground frozen two inches deep.

Hamlinton, Pa.—Destructive freshet 3d, 4th; wild geese 25th; auroras 25th, 31st.

Dyberry, Pa.—Heaviest rain for years 3d, 4th; hail 14th, 19th; first snows 26th to 30th, with ground frozen.

Fallsington, Pa.—Great rain 3d, 4th; killing frost 21st; first ice 26th. A cold, wet October.

Philadelphia, Pa.—Floods in Schuylkill and Delaware 3d, 4th; first ice 26th; first snow 20th.

Plymouth Meeting, Pa.—On 3d and 4th six inches rain fell in twenty-four hours, and four persons and much property destroyed by flood; Schuylkill River higher than in January, 1839; coldest October night in several years 27th; ice every morning after the 24th.

White Hall, Pa.—Continuous rain 3d, 4th; Lehigh River within a few feet of the great flood of 1862.

Factoryville, Pa.—Splendid aurora, red, white, and green streamers, 31st. Month 4°.75 colder than five preceding Octobers, and very wet.

Reading, Pa.—Heavy rain 3d, 4th; Schuylkill up to second story of houses at canal. Month closed cold.

Parkersville, Pa.—Fine rain, heavier p. m., 3d; very heavy night; showers 4th, great flood; faint auroras 6th, 25th.

West Chester, Pa.—Very heavy rains 2d, 3d, 4th; hail 28th; snow 28th, 30th.

Ephrata, Pa.—Rain-fall of eight inches 2d, 3d. Ice an inch thick this month.

Carlisle, Pa.—Light rain 2d, heavy 3d, 4th; first severe frost 21st. Month cold; thermometer as low as 26°.

Fountain Dale, Pa.—Greatest rain (4.58 inches) in two years, 2d, 3d, 4th; light frost 7th; killing 18th, 21st; aurora 31st.

Tioga, Pa.—Thunder 14th; snow on hills 19th; wild geese 25th; two inches snow 28th; brilliant aurora 31st. River frozen over for first time in October.

Grampian Hills, Pa.—Month cool, frosts heavy in latter part; much cloudy but little rain; no storms or high winds.

Johnstown, Pa.—Conemaugh River remains low.

Franklin, Pa.—Moderate rains 2d, 3d, and slight 4th; first frost 13th, heavy 17th; snow-flakes 19th; snow 26th; aurora 21st.

Connellsville, Pa.—After 24th cold, ground and apples on trees frozen.

New Castle, Pa.—First hard frost 13th; first snow 19th; snow, nearly every day, 23d to 29th. October 7° to 10° lower than for eleven years.

Beaver, Pa.—First frost 13th; thunder-shower 14th; snow-flakes 19th; coldest October night known here 26th; snow, apples frozen on trees 27th; beautiful aurora 31st.

Milford, Del.—Rainy day and night 3d; first frost 7th; ice 25th; wild geese 26th; brilliant aurora 31st.

Woodlawn, Md.—First ice 17th; snow-flakes 28th; squalls 30th; aurora 31st. Month 14° below October average of four years.

Annapolis, Md.—Thunder-storm 12th; first hard frost 25th.

Emmittsburg, Md.—Heaviest rain for years 2d to 5th; thunder and lightning 12th; slight aurora 31st.

Washington, D. C.—On 3d and 4th 6.55 inches of rain fell.

Johnsontown, Va.—Slight showers 2d, 3d, rain all night 4th; first frost 17th; ice 27th, 28th; first snow 30th; brilliant aurora, blue arch and five red beams, 31st.

Hampton, Va.—First frost 18th; faint aurora 31st.

Zuni Station, Va.—Killing frosts 16th, 17th; ground frozen 27th, 28th; snow sprinkle 30th; brilliant aurora 31st.

Bacon's Castle, Va.—Showers 3d; ice 14th; red aurora 18th; hail and snow 30th. From frost to frost, April 6th to October 14th, one hundred and eighty-eight days. Last part of October cold and windy.

Comorn, Va.—Rain 6 a. m. till midnight, 5.055 inches 3d; hail 12th; first killing frost 25th; aurora 31st.

Vienna, Va.—Hard frost 25th; ground frozen 26th; slight snow 28th; aurora 31st.

Lexington, Va.—First killing frost 14th; aurora 31st.

Lynchburg, Va.—Rain all day 2d, 3d; first killing frosts 14th, 16th, 17th; first ice 27th.

Snowville, Va.—Month drier and colder than in 1867 and 1868.

Wytheville, Va.—First snow, light, 20th. A cold month.

Mt. Olive, N. C.—First frost 14th; ice 27th, 28th, 30th, 31st.

Albemarle, N. C.—First killing frost 28th; wild geese 26th. Springs still failing in every direction.

Aiken, S. C.—Lightning and thunder 12th; first frost 14th.

Gowdeysville, S. C.—Frosts 16th, 17th; ice 27th, 28th, 31st. Month cold, but favorable for gathering crops.

Atlanta, Ga.—First white frosts 16th, 17th, heavy 27th, 28th.

Berne, Ga.—Light frosts 16th, 28th, 30th, 31st.

Columbus, Ga.—An aerolite fell about 11 a. m., on 6th, "with an explosion that was heard for thirty miles around, and the several fragments fell in different parts of the surrounding country. The fragment submitted to us must, of course, have been broken with sharp edges, and these were rounded by combustion during its fall. This indicates a considerable height for the region of its explosion."

Opelika, Ala.—First frost 11th, killing 27th; ice 27th, 31st.

Mouiton, Ala.—First frost 13th; ice 25th, 28th, 31st. Month pleasant, swallows gone, chestnuts ripe, leaves falling.

Greene Springs, Ala.—First white frost 16th, first ice 27th.

Fish River, Ala.—First killing frosts 28th, 29th, 30th.

Jacksonville, Fla.—Barometer very low 3d, 4th; frost reported 28th. Month dry and pleasant. October average temperature for twenty-four years, 70°.7, and rain-fall 3.575 inches.

Ocala, Fla.—Drought of fifteen hot days ended on 23d by a rain that refreshed man, beast, and vegetation.

Gilmer, Texas.—Geese 1st, 8th, cranes 21st; first frost 16th, first ice 24th. Month unusually cool.

Blue Branch, Texas.—Month very cool, clear, dry; favorable for picking cotton, which is nearly done.

Lavaca, Texas.—Rain, norther, wild geese 2d; pleasant to 7th; norther 23d; raw and cold to 27th.

Austin, Texas.—Norther, thunder, lightning, 1st; wild geese 14th; norther, thunder, lightning, rain, hail large and damaging, 22d.

Palestine, Texas.—First frosts, light 16th, medium 24th, 31st.

Grenada, Miss.—First killing frost, 16th, earliest in thirteen years, except in 1856 and 1858. Coldest October in fourteen years; cotton much injured by frosts.

Brookhaven, Miss.—Dry and pleasant 1st to 8th; frosts, light 10th, killing 16th, 17th; heaviest rain this year 21st, 22d, damaged cotton,

roads, &c.; rainy and cool 25th to 29th; wild geese, snow-birds, robins, 23d to 31st.

Natchez, Miss.—Frosts, light 16th, heavy 30th; thunder, with shower, 22d, with deluge, 23d.

Marion, Miss.—First frosts 16th, 17th; ice 28th. Month favorable, sufficient rain and at right time, clear skies and little wind.

Columbus, Miss.—First frosts 16th, killing, with skim ice, 27th. In twenty-five years had ice in only four Octobers; this the coldest known, nearly 7° below the average of fifteen Octobers past.

Elizabethton, Tenn.—First severe frost 17th; ground slightly frozen 27th, 28th.

Austin, Tenn.—A delightful month, crops housed.

Clarksville, Tenn.—First killing frost, 16th; heavy hoar frosts with ice, 24th, 25th, 26th, 27th.

Memphis, Tenn.—An October of low temperature; frost on ten and ice on five mornings.

Pine Grove, Ky.—Killing frost 6th; first ice 13th; snow-flakes 19th. Month quite dry but 11° lower temperature than in thirteen years.

Shelby City, Ky.—Month dry, pleasant, but very cool.

Steubenville, Ohio.—Frost 13th; light snows 19th, 27th; brilliant aurora 31st.

Painesville, Ohio.—First frost 21st; hardest freeze known in October 25th, 26th.

Gilmore, Ohio.—Frost 5th; ground frozen 23d; auroras 25th, 31st.

Cleveland, Ohio.—Snow 19th; first frost 21st; ground frozen 25th; aurora 31st.

Wooster, Ohio.—Snow-storms 19th, 30th; auroras 25th, 31st.

Kelley's Island, Ohio.—First frost, light 21st; ice 24th. Month 6.16° colder than October average of ten years; westerly winds nearly all the month.

North Fairfield, Ohio.—Misty rain 4th; ice 21st, 25th, one and a half inches thick; auroras, bright 25th, ordinary 31st.

Gambier, Ohio.—First snow 19th; bright auroras 25th, 31st.

Westerville, Ohio.—Frosty 17th; snow squall 19th; bright aurora 31st.

Marion, Ohio.—Frost and ice 13th, 16th; snow-flakes 19th; ground frozen 24th; slight aurora 31st.

Hillsboro, Ohio.—Frost 6th. Unusually cold October.

Toledo, Ohio.—Rain all day 2d, 4th; frost and ice 3d; ground frozen 15th, 16th; first snow flurry 19th, three inches 23d; ground frozen to bear teams 25th, 26th, 27th; auroras 25th, 31st.

Bowling Green, Ohio.—On 27th about three a. m., a meteor like headlight of a locomotive, and a stream of fire, lit up the earth for half a minute, and after a few seconds exploded with a rumbling noise that shook buildings. Seen or heard at Berwick, Carey, Kenton, Finley, Ottawa, Forest, &c.

Kenton, Ohio.—At 2.46 a. m., on 27th, heavens lit as with sunlight, and in ten to eleven seconds a report as of a cannon, or quick, sharp clap of thunder, followed by rumbling, passing to northeast, shook houses and vibrated the earth like an earthquake. Report was heard and light seen sixty miles south, and twenty miles west, east, and north. Supposed to be the explosion of a very large meteor.

Urbana, Ohio.—First hard freeze 24th; white aurora 31st. Month 8° below October average of seventeen years, and 5° below coldest October in that time.

Bethel, Ohio.—Thunder-storm 4th; frosts, smart 6th, hard 13th, very hard 16th; three inches snow 19th.

Jacksonburg, Ohio.—Killing frost 13th; auroras, faint 25th, bright 31st.

Alpena, Mich.—First frost 13th; ground frozen 17th; snow and hail 19th; skating 26th; auroras 25th, 31st.

Lansing, Mich.—Snow on ground 22d to 29th; coldest October days ever known here, 21st to 30th.

Litchfield, Mich.—Foliage green 22d; then 8.5 inches snow 22d, 23d. All apples not shaken from trees into the snow frozen.

Cold Water, Mich.—Ice 12th; rain, then eight inches snow 22d, hung on trees till 24th, and broke some down.

Grand Rapids, Mich.—Frosts light 6th; killing 20th; over 3.5 inches snow on ground 22d to 27th. Coldest October since 1842.

Northport, Mich.—Light snow 12th; fine hail 15th; thunder and lightning 16th; 14.5 inches snow 22d, 23d, 24th, with flowers in bloom and vegetation green as in summer. Total snow-fall 23.25 inches in October.

Muskegon, Mich.—Little rain, one inch snow, but windy, raw and cold—one of the unpleasantest Octobers ever known here.

Otsego, Mich.—The last week in October very cold.

Copper Falls, Mich.—Snow fell early and laid more than half the month.

Ontonagon, Mich.—Snow squalls 11th and 17th; snows, two inches 23d; three inches 24th; four inches 26th.

Vevay, Ind.—Frost 13th; severe frost 18th; rain, then sleet, then snow, 19th; broke down trees and froze plants.

Mt. Carmel, Ind.—Killing frost 13th; ground frozen 16th; unusual snow 19th; and to 28th coldest ever known in October.

Muncie, Ind.—First snow 25th; pale aurora 31st. From 22d to 27th colder than November, 1868. October mean 7.2° colder than in 1868.

Columbia City, Ind.—Damp snow, 5.5 inches, 22d, 23d, broke down trees, &c. Green forests in savage winter!

Knightstown, Ind.—Ice 13th, 16th; snows 18th, 19th, 22d.

Indianapolis, Ind.—Lightning 2d; misty 3d; hard frosts 13th, 16th; first snow 19th; bright aurora 31st.

La Porte, Ind.—Frost 3d; first ice 13th; frost, ice, 16th.

Rensselaer, Ind.—Thunder-showers 16th; hard frost 11th; ground frozen 13th; snow-birds 14th; snow flurry 19th; deep snow 23d.

Kentland, Ind.—Frost, ice, 13th; three inches snow 22d.

New Harmony, Ind.—Heavy snow 19th. Coldest October in seventeen years.

Harveysburg, Ind.—Snow 21st, 26th. Broke down trees.

Marengo, Ill.—Thunder-shower 3d; frost 5th; ice 11th; first snow 25th. Coldest October on my record—5.61° below average of nine years.

Mattoon, Ill.—Sleet, rain, 5.5 inches snow 22d, 23d.

Louisville, Ill.—Frosts 4th; heavy 10th; four inches snow 19th. An unprecedented cold October.

Goleonda, Ill.—First frost 19th; ice all day 26th.

Belvidere, Ill.—Severest October since settlement, 1835.

Ottowa, Ill.—First ice 12th; snow-storm 22d, 30th.

Wapello, Ill.—Warm and pleasant till first severe frost 15th; after that coldest October ever known here—two inches snow, little rain.

Winnebago, Ill.—Heavy frost 5th; first snow 25th. Month 9.65° below October average of eleven years.

Wyanet, Ill.—Frost and ice on, and nearly every morning after, 10th. A cold October.

Tiskilwa, Ill.—Apples frozen solid 20th; first snow 22d. Hard freezing nights last half of October.

Hennepin, Ill.—Katy-dids and crickets heard till 19th; then frost and ice plenty; snow 22d; then cold to 28th. Such an October unknown in forty years.

Springfield, Ill.—Heavy first snow 18th; then very cold to 28th. Then Indian summer till close.

Dubois, Ill.—First killing frost 13th; cranes and brant going south 14th; rain and snow 23d; then ground frozen till 27th; then Indian summer till close.

South Pass, Ill.—Ice 24th, (no white frost yet;) snow sprinkles 24th, 27th, 29th. Wild geese 26th; brilliant aurora 31st.

Manchester, Ill.—Hard frosts 4th, 5th, 16th, 23d—three inches of snow 23d.

Mt. Sterling, Ill.—Thin ice 14th; first snow 19th; ground frozen 20th.

Augusta, Ill.—First killing frosts 11th, 14th; strong ice 19th. Coldest October since 1833 (except 1863, with mean temperature 43.24°) by about 10°.

Manitowoc, Wis.—Thunder-storm 10th; ice 13th; boys skating 24th; aurora 31st. Coldest October in eighteen years—in 1863, 42.78°; in 1854, 52.33°; average of 18th, 47.03°.

Plymouth, Wis.—First snow 25th, on green woods and orchards. Weather dry; month 7° colder than October average of five years.

Milwaukee, Wis.—Frosts 10th, 11th; ice 12th, 13th; aurora 31st.

Embarrass, Wis.—Auroras, faint 2d; bright 31st; ice 11th; ground froze hard 13th; wild geese 18th. Coldest October in fifteen years.

Rocky Run, Wis.—Auroras 2d, 4th, 24th, 31st; heavy frost 5th; snow 24th, 29th. Month 5° colder than any October in ten years.

Baraboo, Wis.—First frozen ground 5th. Coldest October ever known here—many potatoes frozen.

St. Paul, Min.—Only one colder October (1863) in forty years, and then cold more equable; and only four months in that time had less rain.

Minneapolis, Min.—First snow 24th; first ice in river 23d.

New Ulm, Minn.—Frost 2d; ice 12th; ice in river 26th.

White Earth, Minn.—Lakes close 22d; auroras 30th, 31st brilliant.

Clinton, Iowa.—Frost 2d; snow-squall 24th. Month dry, windy, and last part cold.

Waukon, Iowa.—Ground froze five inches at close of month.

Monticello, Iowa.—Pleasant month; two rainy days, nine cloudless.

Iowa City, Iowa.—Frost, ice, 13th. Month 6.86° below October average mean temperature of thirty-one years, (49.58°.)

Independence, Iowa.—Frost, ice, 5th; wild geese 9th; ground frozen 13th; then cold to 31st.

Waterloo, Iowa.—"An awful 'squaw winter,'" (ground frozen two inches,) "and no 'Indian summer.'"

Rockford, Iowa.—After 10th steady cold, but good weather to dry stacks.

Algona, Iowa.—Ice 12th; snow 24th. Coldest October known here.

Near Algona.—Frost 2d, and every night after 15th. Month dry, and 7.20° colder than last October.

Boonesboro, Iowa.—Coldest October, except 1863, in fourteen years; eighteen clear, seven smoky, three rainy or snowy days; ground frozen solid one week.

Fontanelle, Iowa.—Coldest October on record; last half average only 1.50° above freezing point.

St. Louis, Mo.—First frost 13th; first snows 19th, 22d, 2.75 inches.

Hematite, Mo.—Rain, sleet, hail, 3.25 inches snow, 19th; rain, an inch snow, 22d; faint purple aurora 31st. Never knew so cold an October.

Rolla, Mo.—Frosts 3d; killing 5th; ice 16th; frozen rain, snow, wild geese, 19th. Month steady cold, nearly 11° colder than in 1868.

Hermitage, Mo.—Sleet, snow, 19th to 22d. Coldest October remembered; 14.4° below 1867, and 13.1° below 1868.

Bolivar, Mo.—Ice 14th, 15th; snow 19th, 22d. Month so cold as to beat "oldest inhabitant."

Harrisonville, Mo.—Light frosts 2d, 9th; ice 15th, no damage,

St. Joseph, Mo.—Snow two inches 19th; an inch 21st, 22d; ice 23d.

Oregon, Mo.—Smoky 14th to 18th; first snows 19th, all day 22d; prairie fires 25th to 31st.

Atchison, Kans.—Month 7.3° colder than October average for six years.

Leavenworth, Kans.—Frosts 2d; hard 5th; snow 19th; ice 20th. Coldest October on record.

Paola, Kans.—Very cold nights 8th to 27th.

Baxter Springs, Kans.—First frosts 3d; killing 9th; sleet 22d; slight snow, first, 23d.

Lawrence, Kans.—First snow 1.25 inches 19th. Coldest October recorded; clearest and driest month since last February.

Neosho Falls, Kans.—First killing frost 15th; round snow 19th.

Council Grove, Kans.—Frosts 5th; killing 8th, 9th; first snow 19th.

Crawfordsville, Kans.—First killing frost 15th; first snow 22d. Month favorable for sowing wheat.

Elkhorn, Nebr.—Ground frozen 9th; snow 19th. Coldest October but one in twelve years.

Omaha Mission, Nebr.—Pleasant month; no snows; two showers; crops good.

Fontanelle, Nebr.—Air clear, one rain; ground frozen four inches latter part of month. Coldest October known here.

Bellevue, Nebr.—First ice 15th. Month 7.1° colder than last year.

Glendale, Nebr.—First snow 22d. Month 12° colder than October average of two years; would have been a pleasant November.

Nebraska City, Nebr.—Wild geese 1st; first killing frost 15th. Month very dry, and latter part very cold.

Harrisburg, Utah.—Month dry, pleasant; late light frosts.

Coalville, Utah.—Wild geese 12th; four inches snow 18th. Coldest October in four years; twenty-one cloudless days.

Watsonville, Cal.—Wild geese 2d; slight earthquake and first rain 19th. A very pleasant October.

Vacaville, Cal.—Grass springing thickly 23d; no frost yet.

Deer Lodge City, Mon. Ter.—Larks singing 11th to 15th. Snow-squalls on the mountains, but no rain nor snow in the valley. Magnificent weather here; no earthquakes, tornadoes, thunder, hail, or auroras known here; stock fat in spite of drought of past year, and people all healthy.

November, 1869.

W. Waterville, Me.—Seventh day of sleighing, 5th. Month 1.18° below average of five years, and had not one entirely clear day.

Gardiner, Me.—Aurora 7th, 8th, 9th, 10th. Average mean heat of November for thirty-three years, 35.72°; this, 34.49°; average moisture for thirty-three years, 4.39 inches; this November, 3.09 inches.

Norway, Me.—Violent gale and rain 20th; faint aurora 25th. Month cloudy, but few storms. Ground froze four inches.

Cornishville, Me.—Aurora 8th. November average heat for forty years, 33.50°; this year, mean 33.23°.

Whitefield, N. H.—Aurora flecks, 26th. Snow or rain eighteen days.

Shelburne N. H.—Snow-drifts three feet high 7th; sleighing 18th, 19th.

Tamworth, N. H.—Ground bare till 17th; then covered with snow till 20th; heard frogs peeping 21st.

N. Craftsbury, Vt.—Skating on small ponds 16th. Month very cloudy, but not stormy.

Randolph, Vt.—Great rain-storm and high wind 20th. Month uniformly cold. But little snow laid; some skating.

West Charlotte, Vt.—Distant thunder 1st; Indian summer 1st to 7th—variable to 30th.

Middlebury, Vt.—Great gale 20th, very destructive.

Castleton, Vt.—Severest and most destructive gale I ever felt, 20th.

Georgetown, Mass.—First snow-fall 7th; wild geese 15th; heavy gale stripped the trees 20th; streams open, no frost 30th.

Worcester, Mass.—Auroras 12th, 25th.

Lunenburg, Mass.—The gale, 20th, was very destructive twenty miles north and south. No snow or frozen ground 30th. November average temperature for thirty years, 40.19°.

Amherst, Mass.—Ground white with snow 15th; hail 17th.

Moriches, N. Y.—Auroral lights 10th, 25th.

South Hartford, N. Y.—The great gale 20th very destructive.

Garrison's, N. Y.—Storm 17th, no damage here; aurora 25th; rain 29th to close. Month unusually cold.

New York City.—Meteors of various colors, some quite large, 1st; aurora 15th.

Minaville, N. Y.—On six days 12.35 inches snow; rain on 20th only.

N. Hammond, N. Y.—Ground frozen all month. Many vessels and lives lost in gale of 18th.

Leyden, N. Y.—Sleighing 12th. Month cold, cloudy, wet and snowy; 22.75 inches snow in November.

South Trenton, N. Y.—Destructive east gale 16th; no snow on ground 30th; 20.61 inches snow this month.

Cazenovia, N. Y.—Snow-fall in November, 36.5 inches.

Depauville, N. Y.—Auroras 8th, 25th; splendid arborescent frost 25th; snow gone, frost out of ground, 30th. Very little fall plowing done; cattle foddered six weeks earlier than usual.

Palermo, N. Y.—Most terrific wind and snow-storm ever known here in November, 8th, 9th. Coldest November and (except 1868) autumn in sixteen years.

North Volney, N. Y.—Greatest November snow 6th to 9th, and badly drifted. Fall 3.17° warmer than in 1868. Thirteen days snow and nine days rain this month.

Nichols, N. Y.—Snow on twelve, and rain on five days, in November.

Little Genesee, N. Y.—A wintry month; two weeks sleighing; could not dig potatoes; cattle foddered a month earlier than common.

Buffalo, N. Y.—Indian summer till 5th, ended by a gale with hail and rain; severest storm of the season 17th; destroyed many lives and vessels. Month cloudy; 5° below November average of eleven years. Many undug potatoes under the snow.

Trenton, N. J.—Only two Novembers in twenty-six had as low mean temperature; the twenty-six averaged 43.094°—this 4.378° lower; warmest, in 1849, 49.66°; coldest, in 1843, 38.16°. Heavy gales 16th, 17th, 19th, and 20th.

Newfield, N. J.—First lying snow 14th. Cold, unpleasant month; the fall 4° below the average.

Greenwich, N. J.—Tomatoes from July 15th till 2d inst. Ice all day 25th. Month cold, stormy, and 5° below average of five years; but little snow here.

Dyberry, Pa.—First inch of snow 7th; ground frozen nearly ever since October 25th; snow all the month, but only 5.5 inches in all.

Fallsington, Pa.—Severe storm 17th. Coldest November since 1858.

Plymouth Meeting, Pa.—Wild geese 11th; snows, 2.5 inches 14th, 2.1 inches 16th; violent rain-storms 17th, 20th. Month unusually cold; ice every morning except five since October 24th.

Factoryville, Pa.—Mean fall temperature of 1868, 48.86°; of 1869, 45.73°. A cloudy month; 4° colder than November average of five years.

Carlisle, Pa.—First snow-flakes 7th; first snow 13th, 14th; first sleighing 16th.

Fountain Dale, Pa.—Ground white with snow 7th, 23d. Month 6° colder than in 1868, but fine—less rain and snow. Plowing all month.

Tioga, Pa.—Like October, cold, stormy; more like December than November.

Grampian Hills, Pa.—Snow covered ground from 7th to 30th, when snow was four inches deep, and roads icy.

Franklin, Pa.—Snow 16th; rain on eight days; snow-fall, 13.25 inches.

New Castle, Pa.—Month 10° colder than in eleven years; snow-fall 16 inches; no Indian summer.

Beaver, Pa.—Very high wind 17th. Month cold, weather rough.

Canonsburg, Pa.—Thunder 1st; high wind 16th, 17th.

Woodlawn, Md.—Stormy month; twenty days at and below 32°; 5.5° below 1868, and 9.5° below the average of the four preceding Novembers.

Emmittsburg, Md.—Some snow 7th; first snow-storm 13th; strong gale and some rain 30th.

Hampton, Va.—Violent gale from south 17th; terrific wind, storm, lightning, and thunder, 19th. Pleasant but cold month; nineteen frosts.

Zuni Station, Va.—Only three clear, sunny days; yet pleasant month, with much frost.

Bacon's Castle, Va.—Month calm, cold; frequent showers.

Snowville, Va.—Snow-fall 7.7 inches. Temperature 35°; in 1867, 42°; 1868, 40°.

Albemarle, N. C.—First snow, with wind, sleet, 7th; rain on nine days, but springs and wells not affected; no thunder.

Evergreen, S. C.—Ground kept too wet by frequent freezing for sowing wheat.

Gowdeysville, S. C.—High wind, some rain, 16th; ground frozen an inch, 20th; frost and ice 23d. Month 3.7° colder than in 1868; more frost and ice than usual.

Berne, Ga.—Light frosts 1st, 2d; but peaches in blossom for two weeks not hurt. Brilliant falling stars at 1 to 2 a. m. on 13th; thunder and lightning 16th; heavy frost 20th; peaches yet uninjured.

Moulton, Ala.—Windy 16th to 22d. Month damp but not cold; only one-eighth inch of ice formed.

Mobile, Ala.—Aurora 3d; man killed by hurricane 17th; heavy white frost 20th.

Jacksonville, Fla.—Temperature about 3° below average; only tenderest vegetables frosted.

Pilatka, Fla.—First frosts 8th, 21st, 22d. No thunder, little cloudiness, air hazy all month, like your Indian summer.

Chattahoochie, Fla.—Violent wind and rain-storm 16th.

Austin, Texas.—Smoky north wind from 9th to 13th; partial frost 17th.

Marion, Miss.—Frosts 7th, 25th; thunder-storms 9th, 19th; fearful wind-storm 16th.

Elizabethton, Tenn.—First snow 7th. Very cloudy, little rain.

Clarksville, Tenn.—Gales and torrent of rain, heaviest storms for some time, 16th, 17th. Many storms of wind, rain, sleet, snow.

Knoxville, Tenn.—Flocks of wild pigeons going southeast 29th.

Pine Grove, Ky.—Heavy gale 16th; another, rain all day, 30th. Month cloudy; rain or snow on nineteen days.

Shelby City, Ky.—Small bats 29th; rain and wind storm 30th. Month 6° below average of ten years.

Steubenville, Ohio.—Thunder, rain, hail 1st; heavy wind and rain 5th, 17th. Frost on seven mornings.

Sandusky, Ohio.—Thunder showers 4th; snow 6th; upper bay frozen over 23d.

North Fairfield, Ohio.—Snow, then rain with strong southeast wind 16th. Snow-fall twenty-one inches in November.

Westerville, Ohio.—Thermometer 17° at 6 a. m. 8th. Stormy month.

North Bass Island, Ohio.—Lightning, thunder, hail 4th; terrific gale 16th, 17th. Ten inches snow on six days.

Toledo, Ohio.—Severe rain and snow storm from east 16th; prevailed from Rocky Mountains to the Atlantic, destroying $500,000 shipping, &c.; river first frozen over 22d, and greatest depth of snow known in November; fine sleighing 24th; dense fog 24th to 26th. The month 6° below average of many years.

Kenton, Ohio.—Gale from southwest, snow from southeast, then fine rain 17th.

Urbana, Ohio.—Snow, hail, sleet, rain, snow, rain in succession 22d; after thirteen days' stay, snow gone 26th. Mean temperature 5.40° below November average of eighteen years, and lower than any of the eighteen. Snow (11.55 inches) quadruple the average.

Jacksonburg, Ohio.—Snow storms on eight days, with rain and hail 16th, 27th.

Lansing, Mich.—High wind (barometer 27.96 inches) 16th, 17th.

Litchfield, Mich.—At 11 p. m. on 3d, no aurora, but so light that distant objects were quite visible, thunder and brilliant lightning in south; six inches snow in twelve hours, followed by torrents of rain 16th, which continued in showers, and with snow, till 20th; twenty-eight inches snow in woods 22d, most in any winter except 1842 and 1843; snow settled and wheeling good 30th.

Cold Water, Mich.—Snow in woods eighteen inches 23d; ground not frozen 26th; snow nearly gone 30th.

Grand Rapids, Mich.—Thunder and lightning 29th. A cold, cloudy, stormy month; nine days sleighing from 16th to 25th; farmers caught with fall work only half done.

Muskegon, Mich.—Snow on seven days from 16th, between twenty-five and thirty inches fell; nearly all gone 30th.

Otsego, Mich.—Snow on ground all month; never knew so early a winter; much corn and potatoes ungathered.

Veray, Ind.—Violent wind and rain from southwest 16th, 17th; torrents 29th; without intermission 30th.

Laconia, Ind.—Severe southwest gale 16th; south gale 18th; thunder 22d.

Kinghtstown, Ind.—Heavy snow and rain 16th; thunder and lightning followed by snow flakes like hen's eggs, 22d.

La Porte, Ind.—Lakes frozen over 23d. Snow-fall twenty-two inches.

New Harmony, Ind.—Heavy thunder, rain all day 16th; thunder storm 29th.

Near Chicago. Ill.—Rain and snow last thirty-six hours 19th.

Marengo, Ill.—One foot snow 19th, (in 1860, November 23d, had sleighing, but less snow;) sleighing done 30th.

Louisville, Ill.—Bees, butterflies, &c., abroad and birds singing 2d; wild geese 6th; thunder and rain 15th, 16th; tremendous wind 17th; thunder-shower 22d. Month very dark, cloudy, cold.

Golconda, Ill.—Hard blow from southwest 15th. No thunder this month, but very cloudy and cold.

Belvidere, Ill.—Heavy snows 16th to 18th; sleighing to 25th.

Ottawa, Ill.—Snow and sleet 11th to 16th, and 18th, 19th. A wintry month; thousands of acres of corn unharvested.

Winnebago, Ill.—A foot of snow with strong wind 16th, 17th. Month 5.32° below average of twelve years.

Hennepin, Ill.—Misty; by 18th snow covered ground; by 30th ground visible. Potatoes, &c., frozen 20th, and onward.

Dubois, Ill.—Thunder and lightning 16th; heavy gale 22d; frogs sing 29th. Month 3.4° colder than the average for four years, and 2.63 inches more rain.

Mt. Sterling, Ill.—Heaviest November snow since 1842, 15th, 16th. Ground frozen three to four inches, and thawed, several times; wheat looks bad,

Warsaw, Ill.—Spring day 29th; cold 30th; 15° December 1st.

Plymouth, Wis.—Fog and lightning 29th. Sleighing from 13th to 30th.

Milwaukee, Wis.—In great storm on the lakes, thirty-five vessels lost and sixty-two damaged, loss $1,267,800, not including cargoes. A very small percentage would pay expense of warning and so prevent such terrible loss of lives and property.

Rocky Run, Wis.—Aurora 1st; great snow and gale 16th, 17th.

Madison, Wis.—Severe snow storms 16th, 18th; good sleighing to 30th. Last of month like January.

Edgerton, Wis.—Deepest November snows in twenty-one years, 16th, 18th—in all twenty-five inches.

Baraboo, Wis.—More snow (19.25 inches) and good sleighing than in any November remembered.

New Lisbon, Wis.—Month had twenty-seven cloudy, twenty-two snowy, two rainy, and two clear days.

St. Paul, Minn.—Four Novembers in eleven years colder than this, but this more evenly cold, and had only seven clear days, counting half days.

Minneapolis, Minn.—River closed 21st; first sleighing 25th. Coldest November since 1857, and cloudiest on record.

New Ulm, Minn.—Aurora 9th; navigation closed 12th.

Waukon, Iowa.—Good sleighing for twelve days after 17th.

Monticello, Iowa.—First snows, October 27, 1866; December 11, 1867; November 17, 1868; November 8, 1869.

Independence, Iowa.—Heavy snow-storm 16th; rough sweeping snow-storm 18th; river closed 20th.

Waterloo, Iowa.—First snow 8th; heavy snow 18th.

Algona, Iowa.—Coldest November I have known in Iowa.

West Bend, Iowa.—Aurora 9th; snow on eight days, never more than four inches deep, all gone by 30th.

Mineral Ridge, Iowa.—Snow, gale from northwest, 10th; snow and high wind 18th.

Boonesboro', Iowa.—Month below average (34°) of fourteen years; lower only in 1857, (28°;) like October, dry, but ground yet wet from previous rains.

St. Louis, Mo.—Thunder, then heavy wind and snow 16th; high winds all day 19th.

Allenton, Mo.—Thunder and lightning night of 15th, 16th.

Hematite, Mo.—Thunder storm and gale last night, 16th; high wind 18th; lightning and thunder 22d, 23d; aurora 29th. Not a clear day in November.

Rolla, Mo.—Heavy thunder-storm 16th, then snow.

Hermitage, Mo.—Heavy thunder and lightning 15th; snow all day 16th; thunder 29th. Month very cloudy and cold.

Oregon, Mo.—Faint aurora 6th. Wild turkies and beasts in great numbers in the country.

Atchison, Kans.—First ice in river 22d. Coldest November since 1864—4° colder than average of six years.

Paola, Kans.—A gale in gusts from southeast 15th.

Holton, Kans.—Month cold and disagreeable, but no heavy rain or snow, and no lightning or thunder.

Manhattan, Kans.—Fine and mild month; favorable for farmers; ground fit for plowing all month.

Burlington, Kans.—No snow; growing grain looks well.

Council Grove, Kans.—While stormy east, northeast, southeast, and west, weather was fine. Month 5° colder than average of five years.

Bellevue, Nebr.—First snow-fall 10th. A cold cloudy month. Autumn mean 48°, 1.7° below last fall.

Nebraska City, Nebr.—Rain all day 16th; ice in river 20th to close.

Coalville, Utah Ter.—Rain on nine, and snow (eleven inches) on four days. Mean temperature 1° higher than last year.

Watsonville, Cal.—First hoar-frost 23d; first ice 24th. Farmers plowing; some fear a dry winter.

Vacaville, Cal.—First frost 30th. Grass growing finely.

Walla-Walla, Washington Ter.—Wild geese 10th; second frost 23d; second snow 26th; a few small meteors seen 29th.